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U.S. ELECTRICITY SUPPLY AND DEMAND—THE NORTHEASTERN REGION

HEARING

BEFORE THE

COMMITTEE ON ENERGY AND NATURAL RESOURCES UNITED STATES SENATE

ONE HUNDRED FIRST CONGRESS

FIRST SESSION

ON THE

U.S. ELECTRICITY SUPPLY AND DEMAND—
THE NORTHEASTERN REGION

APRIL 13, 1989

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U.S. ELECTRICITY SUPPLY AND DEMAND—THE NORTHEASTERN REGION

THURSDAY, APRIL 13, 1989

U.S. Senate,
Committee on Energy and Natural Resources,
Washington, DC.

The committee met, pursuant to notice, at 9:35 a.m. in room SD-366, Dirksen Senate Office Building, Hon. J. Bennett Johnston, chairman, presiding.

OPENING STATEMENT OF HON. J. BENNETT JOHNSTON, U.S. SENATOR FROM LOUISIANA

The Chairman. The hearing will come to order.

Today the Committee on Natural Resources begins an examination of the supply and demand for electricity in the United States over the remainder of the 20th Century. We are beginning with testimony on the situation in the Northeastern United States, New York and New England.

For several years the committee has been aware of first a trickle of information and predictions of an impending electrical shortage in the Northeast. The economy of the Northeast has improved in the last decade. The consumption of electricity has increased.

This year, the trickle of prediction has become a flood. Consumption of electricity in the Northeast is up sharply. Supply has not increased. Existing capacity is under severe strain. Reliability is eroding to a dangerously low level.

Utilities in the Northeast are scrambling to meet demand. They are buying power from new sources, including sources in Canada. They are extending the life of existing plants. They all have demand reduction programs—improving efficiency, but also reducing voltage and curtailing customers.

They are trying to build some new capacity—oil-fired capacity. None of it is enough; much of it is polluting.

In the middle of this emerging crisis are the Shoreham and Seabrook nuclear plants. By the end of this week, a decision will likely be made to close the Shoreham plant.

This is an 800 megawatt nuclear reactor, fully completed, almost certain to be licensed by the Nuclear Regulatory Commission located right in the middle of an area that desperately needs power.

Yet, an extraordinarily bizarre set of measures will be imposed to avoid the use of this perfectly good plant, and the ratepayer of Long Island will pay three times for Shoreham: for its construction; its destruction; and its replacement.

There is more than reasonable hope that the Seabrook plant will avoid the political misjudgment that has engulfed Shoreham and will be treated as rationality demands. It will be operated.

The operation of both these plants would only make a bad situation tolerable. No one seems to have a program to make the situation better. In the Northeast, the politicians, the utilities, the business community and the voters must begin to address solutions.

What we know about the current situation suggests the following.

First, the next energy crisis will be an electricity crisis in the Northeast.

Second, this crisis will manifest itself in the form of blackouts and brownouts. Blackouts and brownouts will become a part of the normal life in the Northeast.

Third, the type of industry that has fueled the economic recovery of the Northeast will not accept an unreliable electricity program. High tech industry is dependent on high quality electricity. This type of industry will begin to leave the region. In many of these industries, if the electricity goes off or if the voltage goes down by an unacceptable amount, the machines which depend on this electricity—for example, computers which must be cooled—may be destroyed at great economic cost.

Fourth, the will to deal with the crisis may not be found until the crisis causes more damage than has yet occurred.

The political leadership in the region is in many ways engaged in actions that tend to magnify rather than reduce the crisis.

The purpose of this hearing is to gather the information that will determine whether this analysis is correct, whether these predictions are true, and to find out what can be done to avoid the shortages that surely loom.

If we accomplish nothing else, I hope we can alert the citizens of the Northeast to the problems they are facing. I also hope we can begin a process to develop responsible Federal, State and local polices that can avoid such crises in other regions of the United States.

I would like to call on the distinguished ranking minority member, Senator McClure.

STATEMENT OF HON. JAMES A. McCLURE, U.S. SENATOR FROM IDAHO

Senator McClure. Mr. Chairman, thank you very much.

Four years ago in the June 1985 issue of "Public Utilities Fortnightly", I predicted that the Northeast would be the first region in the country to experience shortages in electrical generation and that they would start to experience these shortages by the end of this decade.

My forecast proved true, as witnessed by a number of emergency actions, over 40 in total, that had to be instituted in the Northeast region in 1988 in order to preclude total power disruptions. We will get into the actual figures on electricity capacity and demand in the Northeast during the course of this hearing, which I am sure will confirm the severity of the situation.

Also in the "Fortnightly" article, I observed that in response to the overestimation and overbuilding trends of the 1970s, we have tended to overcorrect in the reverse direction; that is, because of the experience of the 1970s there are those who have decided that it is riskier to overbuild than to underbuild our future electric capacity requirements.

This is certainly the case in the Northeast, but it is only a part of the picture, for there are at least two baseload plants that I can think of that have been built that are certainly not imprudent in terms of need and that could be supplying almost 2,000 megawatts of desperately needed power to the Northeast region were it not for the misplaced judgments of certain so-called leaders in that region who so far have managed to thwart efforts to bring these plants on line.

So Mr. Chairman, I am really glad that we are holding this hearing. I am very much concerned about the situation in the Northeast, and I am very confused about some of the circumstances that have led up to this situation.

I wish someone could explain to me why 2,000 megawatts of perfectly useful baseload power is sitting idle in a region that already is far too dependent on imported oil and imported electricity and already has experienced severe power shortages.

You talk about conservation, if conservation means the efficient use of available resources, then these two plants sitting idle are the biggest insult to conservation that I have ever heard of.

I wish someone could explain to me how one of these idle plants, namely the Shoreham plant on Long Island, could be sold for $1, abandoned and decommissioned and still be put in the rate base in addition to rate increases that will result from the purchase of replacement power while the owner of the plant enjoys a $2.5 billion writeoff at Federal taxpayers' expense, a Federal tax writeoff for abandonment of a perfectly useful and desperately needed asset.

I wish someone could explain to me why the ratepayers of Long Island are willing to pay twice for a plant whose capacity is needed now and yet whose replacement or replacements will not be in place in time for this summer's peak demand.

I wish someone could explain to me why customers in the region would rather remain dependent on imported oil and electricity than to have their own nonpolluting, indigenous source of electricity. Has anyone actually polled the Long Islanders to even get their opinions on the latest proposal to close Shoreham, or will it simply be shoved down their throats?

I wish someone could explain to me how Governor Cuomo hopes to convince residents of Long Island that of all the options available, abandonment of Shoreham under his deal will provide, and I quote from his letter to Long Islanders, "the lowest possible rates to Long Islanders" even though under the deal ratepayers get to pay for the Shoreham plant and for its dismantlement and for the necessary replacement power.

It does not take a genius to figure out that with these rate increases, Long Islanders will soon surpass residents of New York City in terms of paying the highest electric rates in the entire country.

Mr. Chairman, I ask unanimous consent that the letter be made a part of the record.

The **Chairman**. Without objection.

[The letter follows:]

STATE OF NEW YORK
EXECUTIVE CHAMBER
ALBANY 12224

MARIO M. CUOMO
GOVERNOR

March 21, 1989

Dear Long Islander:

I am writing to inform you about an agreement that, once and for all, will provide a comprehensive solution to the agonizing saga concerning the nuclear power plant at Shoreham. This agreement will close and dismantle the plant, provide alternative energy sources to replace it, and give LILCO customers rates lower than those they would have to pay if the Shoreham plant were to operate.

This agreement is still subject to approval by the State Public Service Commission (PSC), the Long Island Power Authority, the New York Power Authority and the shareholders of LILCO.

The agreement provides for the dismantling of the plant by the New York Power Authority after careful planning and public hearings. The threat of a nuclear accident will be forever removed from Long Island's future.

Just think of it. For the first time in nearly two decades, the controversy surrounding Shoreham will finally end and we can devote all our energies to solving the other pressing problems confronting Long Island.

Regrettably, no matter what course of action is taken regarding Shoreham, LILCO's electric rates will rise in the future. Of all the options available, this agreement will provide the lowest rates possible -- much lower than if Shoreham were to operate. At this moment, I have the Executive Director of the State Consumer Protection Board fighting before the PSC to assure this result.

The lower rates under my agreement are possible because closing Shoreham will make it unnecessary to spend any additional money on the plant and will guarantee that LILCO and the federal government share the losses with you.

(over)

Last year my administration negotiated an agreement that accomplished many of these same goals. The State Legislature, however, was unwilling to make the hard choices necessary to close the plant and declined to act on the agreement. But now I have found a way to do it without the legislators.

I share the outrage of many Long Islanders about the waste associated with the Shoreham controversy. For six years I asked LILCO to stop investing taxpayers' and ratepayers' money. Too much time and money was put into a nuclear power plant that is of questionable reliability and, because it is located in an area where evacuation is impossible, raises overwhelming concerns about safety.

Unfortunately, there is nothing we can do to recover all the losses associated with Shoreham. There is, however, one sure way to end the waste and provide Long Island with a reliable energy future at the lowest rates possible. That way is the agreement that I have negotiated to close Shoreham and allow us to devote all our attention to building a better future for Long Island.

Sincerely,

Mario M. Cuomo

Senator McClure. Governor Cuomo goes on in his letter to tell the Long Islanders that his deal will guarantee that "LILCO and the Federal Government share the losses with you". He brags that he was able to accomplish this deal without the participation of the State legislature, and he proclaims that his deal is "the sure way to provide Long Islanders with a reliable energy future at the lowest rates possible". Who does he think he is kidding? What reliable power? What lowest rates?

Governor Cuomo even has the audacity to judge the Shoreham plant unsafe, of questionable reliability and impossible to evacuate, despite the fact that the Federal agencies charged with such authority, the Nuclear Regulatory Commission and the Federal Emergency Management Agency, have addressed and resolved every single safety and emergency evacuation issue and despite the fact that the NRC is scheduled to vote on the full power license for Shoreham next week. Why is Governor Cuomo not willing to wait for the decision of the experts on this matter?

I wish someone would explain why, back in the early 1980's, Governor Cuomo stepped in to force an emergency evacuation plan on Rockland County in order to preserve Indian Point's nuclear power license even though Indian Point has the most densely populated evacuation zone of any nuclear plant in the entire United States.

Yet, the same Governor Cuomo has refused to even participate in emergency evacuation planning or exercises in connection with the much more rural area surrounding Shoreham. What gives here?

By now you probably recognize the fact that I am very much disturbed about the fate of Shoreham, and I am convinced that we need to do all that is in our power as responsible policymakers to see that the Shoreham asset is preserved, not destroyed.

I would be remiss, however, if I did not also discuss the Seabrook nuclear station in New Hampshire. Thank goodness that this plant is not being held hostage to a Cuomo-type deal. It was, however, for quite some time held hostage to a misconceived Federal policy on emergency planning which enabled the local communities to, in essence, veto the plant by their refusal to participate in the emergency planning process.

I am relieved that the Federal Government has corrected and clarified its misapplied regulations, and I am confident that Seabrook will receive a full power operating license soon. I only hope it is soon enough to preclude brownouts and blackouts in the New England area. I would hate to see residents suffer when they have a perfectly good resource at their fingertips.

While I have specifically directed my comments towards the situations with respect to the Shoreham and Seabrook facilities, I believe these two cases are indicative of the kind of short-sighted planning we have seen in the Northeast and, indeed, in much of the country.

The Northeast has great potential for economic growth, but I am fed up with doubletalkers and manipulators who have wreaked havoc on energy policy and thus the economic outlook for the region. I am now ready for the facts, and I am ready to take action to try to avert any adverse impacts on the economic security and well being of the citizens of one of the most populated regions of the country.

Mr. Chairman, I must just add that it seems to me that if people within an area wish to take what we think is improvident action, they certainly have no right to call upon the taxpayers of the entire country to bail them out from their decisions.

Thank you.

The **Chairman**. Thank you, Senator McClure.

Senator Bradley.

STATEMENT OF HON. BILL BRADLEY, U.S. SENATOR FROM NEW JERSEY

Senator **Bradley**. Mr. Chairman, I was not quite prepared for Senator McClure's opening comments. I don't wish to respond too directly to his comments but I might say that one could look a little closer at water policy in addition to energy policy in terms of its regional impact.

I hope that this hearing will not simply focus on the Shoreham issue nor simply focus on the Seabrook issue, both of which are surrounded by passions that are really quite strong, but rather that we will focus on the electrical energy supply and demand needs of the Northeast.

I would hope that we would ask questions such as:

Should electricity demand forecasts be revised?

Are there plans to increase the transmission capacity of purchased power from low to high demand areas?

Can new contributions to the electrical supply come from natural gas-fired generation?

On Canadian electricity, what has been the history of electricity imports from Canada?

How long have we imported electricity?

How reliable is this source?

Is there any reason to expect that the imports of more electricity will lead to less reliability?

What are the management techniques that increase the efficiency of electricity use?

What is the record of achievement of these techniques?

I would hope that we would be able to look at these issues clearly, laying the facts on the table so that we all might get a sense of what the facts are for the whole region and determine if there is any Federal role in trying to interact and influence the direction of those policies.

The **Chairman**. Thank you, Senator Bradley.

Clearly, all of those questions that you raise are not only pertinent but very central to this inquiry.

This is not altogether a Seabrook hearing or a Shoreham hearing. Those two plants happen to be on a very short fuse and happen to be part of the equation. As I said in my opening statement, if you put both plants on the line it simply makes a very bad situation barely tolerable. It does not solve the situation.

They are not the solution. They are a temporary palliative at best to a very bad situation. It is a Federal responsibility to help find the solutions here.

I think, though, that people have to understand that there are not a lot of easy options. The shortage is going to be painful, and all of the options involve tradeoffs, just as these nuclear plants involve tradeoffs.

So part of the reason for this hearing is to inform the public about the situation and help make them part of the solution.

Senator **Bradley**. Mr. Chairman, if I could, I suppose I was responding in part to Senator McClure's comments about the Governor of New York. I would hope that the committee could look at the issues and not get tied up in the political personalities of the areas.

The **Chairman**. Senator McClure speaks for himself.

Senator **Bradley**. Every governor struggles with very difficult questions, and some of them come out in different ways than you might come out.

I think that at a minimum we need to accord that kind of respect to him that we would accord to a Senator.

Senator **McClure**. Would the Senator yield?

I will certainly accord to him all personal respect that is due him, but I cannot accord to him very much respect for the policy that he has enunciated.

The **Chairman**. To repeat, Senator McClure speaks for himself. He leaves very little doubt about how he feels about the issue. [Laughter.]

Senator **Bradley**. That was strong medicine.

The **Chairman**. He does speak for himself.

Senator **Bradley**. It is very valuable precedent, though, in terms of looking at a variety of other issues.

Senator **McClure**. I would also say to the distinguished Senator from New Jersey, Bill, I agree with your statement about things that we ought to look at. This is not just a Shoreham or Seabrook hearing, and it is not just the Northeast that is involved in questions about their future electric supply.

I certainly agree with you in focusing on some of the issues to which we should be addressing our attention.

The **Chairman**. To begin, I would like to put into the record an article, I understand, from today's "Newsday" by James D. Watkins, the Secretary of Energy, on "The Shoreham Deal is Stuff and Nonsense". I suspect that Admiral Watkins also has a clear opinion on this issue. [Laughter.]

[The article follows:]

The Shoreham Deal Is Stuff and Nonsense

Newsday / Jerry Gay

By James D. Watkins

IF STATE OFFICIALS have their way, this Saturday, two weeks after April's Fool's Day, about 2.5 million New Yorkers will be hornswoggled into footing the bill for one of the most foolish deals in the nation's history.

What's at stake is the $5.5-billion Shoreham nuclear power plant. State authorities want to buy the plant for $1, dismantle it and pass the bill on to consumers in the form of increased electricity rates and to federal taxpayers in the form of a massive $2.5-billion tax write-off. The state wants to settle the day after tomorrow.

Conceived in 1965 at a cost of $500 million, Shoreham was intended to come on line in 1971 to address Long Island's increasing demand for electric power and to reduce its almost total dependence on oil to generate electricity. Today, 18 years and an extra $5 billion later, Shoreham is ready to operate, but it is forced to sit idle as it has for the past five years — despite a need for its power that is greater than ever. Yesterday, the New York Power Authority approved the closure plan, 3-2. The Long Island Power Authority is to consider it today.

If you are not yet convinced that the Shoreham saga comes straight from "Alice in Wonderland," then ask yourself the following questions:

How can state and local officials claim they will provide reliable electric power into the future when brownouts are already occurring on Long Island? Residents face likely brownouts this summer and in the years ahead. With peak demand having grown an average of 4 percent per year for the last six years, and given the fact that the Long Island Lighting Co. ran at 98.6 percent of capacity last year during its highest load days, elementary arithmetic tells us that Long Islanders are in for tough times ahead. When demand outpaces supply, will the politicians have the courage to tell their constituents to sweat more in the summer? "Off with their heads!" exclaimed Wonderland's harping Queen toward many of her subjects. She finally provoked Alice to "give a little scream, half of fright and half of anger," and awaken to the real world.

How can officials declare that Shoreham is unsafe and that evacuation is impossible if they refuse to participate in emergency planning exercises?

The Nuclear Regulatory Commission holds the responsibility for establishing the highest standards of safety for the development and operation of nuclear facilities across the nation. And the NRC has declared repeatedly that Shoreham is safe and that emergency evacuation plans are more than adequate.

In addition, the NRC has almost completed its exhaustive licensing process, and Shoreham could well be licensed within the next two weeks. The state has not raised similar objections to the six other nuclear power plants operating safely and without harm to the environment in New York.

Unfortunately, no simple solutions or easy alternative answers can be found to meet Long Island's energy needs without Shoreham. The most likely alternative sources of energy either are not presently available or have significant drawbacks. Generating substitute electricity from fossil fuels will increase smokestack emissions substantially. Do state officials suggest that this alternative provides an appropriate response during a time when the nation is moving to address concerns about acid rain and the possible greenhouse effect? The operation of Shoreham would not contribute to either of these concerns. Unlike the Mad Hatter's Tea Party in Wonderland, time is not frozen still. The tea party must come to an end. Environmental concerns must be addressed, and the sooner the better.

With all the promise of clean coal technology, it will not be available in time to meet Long Island's critical need for increased capacity. Nor is oil-fired generation the answer. It would cost from two to five times more per kilowatt-hour than Shoreham-produced electricity. It would also increase America's dependence on insecure imports. Natural gas is in limited supply on Long Island, and building new pipelines would be costly and time-consuming. Which option do the opponents of Shoreham suggest we take?

New York burns almost a quarter of all oil used in the United States to produce electricity — more than any other state. And LILCO is the only major utility in the continental United States that relies exclusively upon imported oil (with some gas in the summer) to meet the needs of its customers. To replace Shoreham's nuclear power would require about 8 million barrels of oil a year. Decommissioning Shoreham would thus represent a significant setback for U.S. energy security.

Today there is widespread consensus on the importance of informed management and excellence of operation that is unparalleled in the nuclear industry. Yet the state's settlement agreement with LILCO requires that Shoreham be transferred to the Long Island Power Authority. How is it possible for anyone today to agree to transfer the complex technological facility that is Shoreham to a shell organization with no expertise, no experience and no leadership in nuclear matters?

In a word, how could this all happen in this country? American technological leadership pioneered nuclear power for the world, and will we now refuse to operate one of our most modern, sophisticated nuclear power plants?

To move ahead on the dismantling of Shoreham would be utterly irresponsible — irresponsible to the Long Islanders who would be asked to foot the bill and irresponsible to all Americans who would be asked to shoulder a diminished energy security.

Ten years after Three Mile Island, with the nuclear power industry having committed considerable resources to learn its lessons, more than 100 nuclear power plants now operate safely in the United States. These plants produce one-fifth of the nation's electric power, making nuclear energy our second largest source of electricity generation and a vital component of our energy strength.

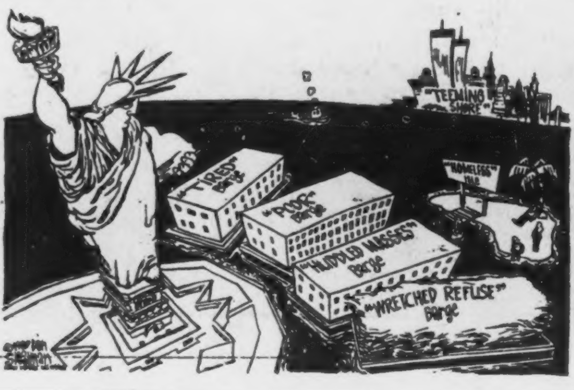
America's commercial nuclear industry has been guided by heightened attention to stringent standards of safety and excellence in operations. And Shoreham is a prime example of this commitment and of improvements in technology.

One dollar for a $5.5-billion testament to American technological knowhow, only to dismantle it?

Even Alice's Wonderland does not contain such anomalies. "Sentence first — verdict afterwards," snarled the Queen furiously. Such a travesty of reason prompted Alice to reply: "Stuff and nonsense! Who cares for you? You're nothing but a pack of cards!"

Let us hope that reason will likewise prevail for us. Let us hope that Shoreham will soon be licensed and put into operation.

SHEFELMAN



The CHAIRMAN. I would like to welcome as our first witness a man who was confirmed but yesterday as Deputy Secretary of Energy. He is from an outstanding State, Louisiana, and we welcome him to his maiden speech, his maiden presentation before the Congress.

Henson Moore, Mr. Secretary.

STATEMENT OF W. HENSON MOORE, DEPUTY SECRETARY, DEPARTMENT OF ENERGY

Mr. MOORE. Thank you, Mr. Chairman and members of the committee.

I do want to thank you for the vote of confidence and confirmation that the committee gave me yesterday and that you and your colleagues did on the Senate floor yesterday.

I want to thank in particular the Chairman and ranking member, their chiefs of staff, Daryl Owen and Frank Cushing, for the tremendous way it was handled. It was handled very expeditiously all the way through. It made the process of serving an administration, or at least going through the nomination process, a pleasure. I really want to thank the committee for all it did. We could not have asked for more accord and accommodation than we received, and we are very appreciative of that.

Mr. Chairman, I would like to ask that the full testimony I have submitted to the committee be submitted for the record, and I will speak from an abbreviated version.

The CHAIRMAN. Without objection.

Mr. MOORE. Mr. Chairman and members of the committee, I appreciate the opportunity to share with you the Department's outlook for electric supply and demand in the Northeastern United States. The principal message I would like to convey is that we are holding two birds in our hand, and we are about to let them go in the hopes of finding one in the bush.

I am talking, of course, about the Seabrook and Shoreham nuclear plants. These plants are built, they are ready to operate, and they are needed. In my view, not allowing these plants to come on line would be a significant setback to the nation's energy policy objectives and to the economic interest of the citizens of the region.

Reliable efficient electricity supplies are essential for economic growth and international competitiveness, the quality of life for all citizens, and for our national security. When we use it in our homes to turn on the appliances or in our factories to produce those appliances, we all understand how vital electricity is to our way of life.

The economy in the United States is growing, and as it does we are using more electricity. In fact, our electricity supply requirements are growing in all regions of the country, but the need for new supplies is particularly acute in New England and the Long Island area of New York. Operating margins in these regions fell below required levels during extreme weather this past year and could fall below acceptable levels even under normal conditions in the next few years.

Electricity supply shortages are entirely avoidable provided that appropriate timely actions are taken. Such actions are needed now.

To see the need for new generation capacity in the Northeast in perspective, it is helpful to examine national and regional trends a little more closely. Most regions have had surplus capacity for most of the decade, but these surpluses are eroding.

Nationally, we will probably need 100 more gigawatts of additional capacity beyond that now under construction by the year 2000. This increase would be about 14 percent of our total installed capacity today. Every sector of our economy depends upon reliable electric service. In recognition of the importance of reliability, most utilities subscribe to a reliability standard which requires a reserve margin—or an excess of generating capacity over peak demand—of 15 to 20 percent in any given region.

In New England under current utility resource plans, reserve margins will fall below 20 percent in 1993 and below 15 percent in 1995 if all additional capacity, both utility and nonutility, including Seabrook, comes on line as scheduled. This means that New England will be vulnerable to supply disruptions in the early 1990s even if demand growth is relatively modest and even if Seabrook is operating.

If either demand growth exceeds projections, as it has over the last two years, or if new capacity including Seabrook does not come on line as planned, the situation in New England will be exacerbated, and reserve margins could fall below acceptable levels as early as 1991 or 1992.

In the New York/New Jersey region, the general outlook is better; however, there is an acute problem in the area served by Long Island Lighting Company (LILCO). LILCO's peak demand has grown on an average of 4 percent per year for the last six years. If LILCO's peak demand continues to grow at 4 percent in 1989, LILCO will have difficulty meeting the New York Power Pool's 18 percent reserve requirement this year.

Against a background of rising demand, inadequate reserve margins and growing concern over emissions from the use of fossil fuels, New York State officials are not only on the verge of deciding to prevent Shoreham's operation but also to decommission the Shoreham plant and irreversibly destroy its value as a source of clean, economic, nonoil-fired electricity.

A decision not to allow its operation is bad enough, but to sanction the decommissioning of Shoreham would be foolhardy and would be opposed strenuously by the Department of Energy. After predictable brownouts, the people of Long Island may well ask their officials to rethink the Shoreham decision; therefore, this option must remain available to them. We urge the Congress to work with us to find ways to see to it that this plant is not decommissioned.

The impacts of not operating Seabrook or Shoreham would be serious. Not bringing these plants on line would clearly increase the risk of reliability problems in New England and on Long Island. This translates into brownouts which have already occurred under unusual circumstances. Falling below reserve requirements increases the risk for brownouts and blackouts.

The utilities serving these areas would have to run their existing oil-fired units for longer periods of the day, thus using more imported oil. LILCO would probably also have to install and operate additional oil-fired combustion turbines just to keep up with demand growth.

Failure to operate both Seabrook and Shoreham would lead to consumption of about 19 million barrels of imported oil per year more for about five years while alternative capacity would be under construction. Quite apart from the serious implications for energy security of increased oil imports, this is a very expensive way to generate electricity.

The cost of building Seabrook and Shoreham is already sunk and will have to be paid even if the plants never operate. Thus, to compare the economics of operating these plants versus alternatives, one must compare the operating cost of the nuclear plants to the combined building and operating costs of the alternatives.

Because nuclear plants have relatively low operating costs, less than 3 cents per kilowatt hour, none of the alternatives compare favorably with running these plants now that they have been built. The levelized cost for supply alternatives are approximately two to five times more per kilowatt hour than Seabrook or Shoreham-produced electricity.

Because of permitting and construction lead times, it will be difficult or impossible to secure reliable equivalents to Seabrook and Shoreham for at least five years. While gas, coal, Canadian power imports, and increased conservation are all feasible alternatives, they may not be available soon enough and in sufficient quantity to avoid supply difficulties and higher electricity cost; nor is the required capacity likely to be available from other regions, since new transmission links would be required to import large quantities of power from these regions.

Moreover, conservation alone is not a satisfactory alternative to operating these plants because both conservation and operation of these plants are economically preferable to oil-fired generation. As a result, both conservation and these plants are needed to reduce the Northeast's current and future overreliance on imported oil.

In terms of environmental considerations, any of the fossil-fired alternatives to Seabrook and Shoreham raise substantial concerns due to increased emissions of nitrogen oxide and carbon dioxide.

I want to take a few moments here to emphasize in the strongest possible terms the continuing importance of nuclear power to the Nation. More than 100 nuclear power plants are in operation in the U.S. today, almost all of which have excellent recent operating and safety records.

These plants produce almost one-fifth of all of our U.S. electricity. The U.S. has been a leader in commercial nuclear technology since we invented and introduced it in the early 1950s, and the U.S. is still the technological leader.

Our economic trading competitors, particularly Japan and Europe, are moving ahead very vigorously with their civilian nuclear power industry. We should be as well. Nuclear energy along with conservation and other advanced technologies must play a vital role in the energy security of our Nation by helping to minimize the amount of oil we must import.

The Federal Government will continue to advocate safe, clean and economic nuclear power and to support the development of advanced nuclear generation technologies. The Limerick plant in

Pennsylvania shows that State and Federal utility officials can work cooperatively and successfully in the development of safe and reasonably cost effective nuclear power facilities.

The Department of Energy strongly opposes the decommissioning of safe and technologically advanced nuclear power plants which are about to be licensed and which represent essential electric generation capacity for a region that needs it.

In conclusion, I think four points are especially important.

One, costly but avoidable reliability problems are looming in the Northeast.

Second, the Northeast is already heavily dependent upon imported oil as a generation fuel. Decisions not to operate Seabrook or Shoreham would exacerbate this condition.

Three, in terms of economics, operating Seabrook and Shoreham would be substantially less expensive to the ratepayer than any of the other alternatives.

Four, actions and leadership are needed now to minimize the risk and cost of electricity supply disruptions to the region.

Thank you for the opportunity to express the views of the Department of Energy on this very important subject. I will be happy to answer any questions if you wish to raise them at this time.

I fully agree with the comments of all three Senators present that this is just the beginning of looking at the total electric generation capacity and supply problems of the United States. This should be just the first installment of our looking at those problems.

Thank you.

[The prepared statement of Mr. Moore follows:]

STATEMENT BY

THE DEPUTY SECRETARY OF ENERGY
W. HENSON MOORE

CONCERNING

THE ELECTRICITY SUPPLY/DEMAND OUTLOOK FOR THE NORTHEASTERN UNITED STATES

BEFORE THE

SENATE COMMITTEE ON ENERGY AND NATURAL RESOURCES

APRIL 13, 1989

Mr. Chairman and Members of the Committee:

I am pleased to present the Department of Energy's views on electricity supply and demand in the northeastern United States. The subject of today's hearing is of grave importance because we are nearing a critical turning point in preserving the integrity of our electricity supply system. In the past few years, generation reserve margins in the Northeast have fallen significantly. In some localities, these margins are already below generally accepted levels, while in other localities they are rapidly approaching danger points. Because of the permitting and construction lead times necessary to bring new plants on line, responsible and deliberate actions are required now if we hope to avoid electricity brownouts and rolling blackouts.

Supplies of reliable and reasonably priced electricity are absolutely essential to our Nation's economic well-being. An inadequate or unreliable electricity system can choke off economic growth and prosperity, prevent the creation of new jobs, and degrade the quality of life of our citizens. Electricity generated at excessive cost will undermine our ability to compete effectively in the international marketplace.

Since the energy crises in the mid-seventies, the Nation has made great progress in reducing the amount of energy we use to produce a dollar of gross national product (GNP), and there is still more we can do. But during that same period, electricity consumption as a share of our total energy use has been increasing. Our economy has become more dependent upon the electricity supply system to meet its energy requirements. We expect that trend to continue, and one of its major implications is that we will need substantial amounts of new generating capacity in the coming decade. In fact, some regions need new capacity now.

The need for new capacity is particularly evident in the northeastern United States. The states comprising the New York Power Pool and the New England Power Pool are home to 13 percent of the current U.S. population. In 1986, these states accounted for approximately 14 percent of GNP, and 9 percent of total U.S. electricity use.

The electricity supply outlook for the New England region is troubling because reserve margins there could fall below acceptable levels as early as 1993 if the recent robust demand growth continues. If either demand growth exceeds projections as it has over the last two years or if new capacity, including Seabrook, does not come on line as planned, the situation in New England will be exacerbated and reserve margins could fall below acceptable levels as early as 1991 or 1992.

While the supply outlook for the State of New York as a whole is generally good, generating capacity appears to be seriously inadequate in Nassau and Suffolk counties, which are served by the Long Island Lighting Company (LILCO). If LILCO's peak demand grows by 4 percent this year, as it has averaged for the past six years, LILCO's reserve margin would fall below 18 percent this year.

Widespread electricity supply shortages would be very costly in economic terms, adversely affecting the quality of life of our citizens. Shortages would also be a direct threat to the Nation's energy security. Fortunately, shortages are also entirely avoidable, provided that timely, reasoned, and responsible actions are taken to avert them. These actions are needed now.

IMPORTANCE OF A RELIABLE, ECONOMIC, SECURE ELECTRICITY SUPPLY SYSTEM

From the perspective of national energy policy, a satisfactory electricity supply system must meet three primary requirements:

> **Reliability:** Every sector of our economy depends upon reliable electric service. Many industries must have a continuous source of power, at a certain voltage and frequency, in order to produce goods of acceptable quality. Offices and businesses of all kinds depend upon power to run computers, lighting, air conditioning, and elevators. In recognition of the importance of reliability, most utilities subscribe to a reliability standard which requires a reserve margin, or an excess of generating capacity over peak demand, of 15 to 20 percent in any given region.
>
> **Economic Efficiency:** Electricity demand fluctuates according to daily and seasonal cycles. This means that utilities must have a wide range of facilities

at their disposal, some of which require major capital investments but can then produce power at low cost if they are run almost continuously. Other facilities require less capital investment but are usually more costly to run; these are used to meet intermittent or peak demand. Utilities which are short of generating capacity are frequently forced to use these latter facilities for longer periods, thus maintaining reliability but driving up electricity rates to the consumer.

— **Security:** Electricity supply security means minimizing dependence upon fuels from insecure sources, such as oil imports. It also means maintaining a diversified generation mix, so as to be able to adjust easily to fuel price changes, unanticipated equipment outages, or natural disasters.

Most regions of the United States have had a surplus of generation capacity for the past decade. In 1985, according to the North American Reliability Council (NERC), the Nation had a reserve margin of 35 percent. But that margin is now down to 25 percent and it is rapidly eroding. Since the early 1980s, virtually all regions of the United States have experienced sustained economic growth and electricity demand growth. Consequently, all regions are likely to need new capacity sometime in the 1990s. The Energy Information Administration (EIA) estimates that by the year 2000, approximately 100 gigawatts of new capacity will be required over and above those plants now under construction, about one-fourth of which will be built by non-utilities. For comparison, 100 gigawatts is about 14 percent of the Nation's total installed capacity in 1988.

RECENT AND PROJECTED TRENDS IN THE NORTHEASTERN UNITED STATES

In 1987 and again in 1988, New England's electricity demand grew at about 5 percent per year. This sustained and relatively rapid growth reflects both a robust regional economy and several very hot summers and was approximately double the rate of projected growth for the region. EIA has projected future demand growth of 2.5 percent per year, assuming normal weather, through 2000. NERC has projected future growth at 2.6 percent per year, through 1997.

Chart I clearly shows that regional reserve margins in New England, currently at about 24 percent, will fall below 20 percent in 1993, and below 15 percent in 1995 if all capacity now planned or under construction (including the completed Seabrook plant and non-utility capacity) comes on line as scheduled. But the chart doesn't tell the whole story. Long-range demand growth projections are averages that assume normal weather, both summer and winter. Unanticipated demand peaks such as those experienced by the region in 1987 and 1988 could easily occur again next year or the year after. Under those circumstances, Chart I may overestimate the near-term adequacy of generating capacity. For example, if demand grows at a higher annual rate of 4 percent for the next three years, the reserve margin would fall below 20 percent as early as 1991 and 15 percent in 1993.

Alternatively, if Seabrook and the small amount of other New England capacity now planned does not come on line as scheduled, the near-term adequacy of reserve capacity could also be significantly overestimated. Chart I shows that if Seabrook does not become operational, and if demand grows only at the modest 2.5 percent rate projected, reserve margins could fall below 20 percent later this year, to 17 percent in 1992, and below 15 percent in 1993.

In short, the New England region is vulnerable to significant supply disruptions or shortages in the early 1990s. These conditions could be triggered by a variety of causes: unexpectedly rapid economic growth, extreme weather conditions, failure of major utility or non-utility generation units to come on line as expected, unanticipated outages of existing generation or transmission equipment, or some combination of these.

The brownouts and rolling blackouts which were experienced repeatedly in New England this past year occurred with regional reserve margins of 24 to 27 percent. But the simultaneous outage of several large generating units caused actual operating margins to drop to 3 percent in January of 1989. Because of the widespread extreme weather, additional electricity supplies were not available from Canada or New York. This may have been an unusual combination of events, but as reserve margins fall below 20 percent, the system becomes more vulnerable to contingencies that are less and less improbable.

In the New York/New Jersey region, the electricity supply outlook is substantially better, at least for the region as a whole. Chart II shows expected reserve margins to be above 20 percent until 1997. Shortfalls within the region are expected to be localized and could be eased somewhat through the provision of additional transmission capacity at critical bottleneck points.

The area of greatest concern, of course, is that served by LILCO. LILCO is the only major utility in the continental U.S. which relies almost exclusively upon oil-fired generation to meet the needs of its customers. EIA data show that LILCO's oil consumption in 1988 was almost 20 million barrels. Further, LILCO's peak demand has grown at an average of 4 percent per year for the past six years, and it needs additional capacity soon to maintain a prudent reserve margin. If LILCO's peak demand continues to grow at 4 percent in 1989, it is unlikely to meet the New York Power Pool's 18 percent reserve requirement this year and could be subject to fines under the Pool's operating rules, as it has been in the recent past.

ALTERNATIVES TO THE SEABROOK AND SHOREHAM PLANTS

Despite the eroding reserve margins, according to the Energy Information Administration, utilities in the New England region are planning to add little capacity beyond the Seabrook nuclear plant. However, New England utilities are signing contracts with non-utility power producers. For example, in 1988, two New England utilities signed contracts with non-utilities for 438 megawatts of new capacity. Currently, bidding programs are underway at other New England utility firms for additional non-utility capacity.

Operation of both the Seabrook and Shoreham plants is an essential component of the Northeast's ability to ensure adequate and reasonably priced electricity for New England and Long Island. Failure to bring Seabrook on line will lead to increased reliance on oil-fired generation. Without Seabrook, New England utilities will burn an extra 11 million barrels of oil per year for at least five years. In addition, they will require the immediate development of alternative capacity at substantial additional costs to electricity consumers in the region.

The Shoreham plant is equivalent to more than 17 percent of LILCO's existing capacity. If Shoreham is not brought into operation, LILCO will burn an additional 8 million barrels of oil per year and suffer significant degradation of their reserve margin. LILCO will probably have to install additional combustion turbines and run them on imported oil. Quite apart from any implications for energy security, this is a very expensive way to make electricity.

Against this background--of rising demand, an inadequate reserve margin in LILCO's service area, and growing concern over emissions from the use of fossil fuels--officials of the state of New York continue to advocate the decommissioning of Shoreham. Indeed, a Settlement Agreement has already been approved by the Public Service Commission and by the trustees of the Power Authority of the State of New York. The trustees of the Long Island Power Authority are meeting today to approve the agreement. This agreement, which provides for the sale of a multi-billion dollar asset at the price of one dollar, would mean ten years of rate increases for LILCO ratepayers. Under this agreement, ratepayers will face two such rate increases during 1989.

In my view, any decision by public officials to sanction the decommissioning of Shoreham would be extremely unwise. The reasons why such a decision would be wrong become clear when one considers in slightly greater detail some of the particulars of the arrangement whereby this decommissioning would come about.

Basically, Shoreham is a brand-new facility which has a low-power license from the Nuclear Regulatory Commission (NRC). The NRC has almost completed its exhaustive licensing process, and Shoreham could well be granted a full-power, operating license within a week.

The NRC requires license holders for such nuclear facilities to possess the proficiency and resources to meet all their responsibilities in conducting operations authorized by their license. Any transfer of Shoreham's current license from LILCO to other entities would require NRC approval and qualification by the new entity as having the proficiency and resources necessary to hold such a license. Under the arrangements by which Shoreham would be decommissioned, its license would be transferred to the Long Island Power Authority (LIPA), which proposes to "purchase" the Shoreham facility for the sum of $1.00. The LIPA is a newly constituted entity which has never carried out any utility service obligations.

Perhaps recognizing these deficiencies, the agreement by which Shoreham would be decommissioned requires that the New York Power Authority (NYPA) provide assistance to LIPA, through a contract arrangement, in the actual decommissioning of the Shoreham facility. Under New York law, however, NYPA's basic responsibilities are to provide electricity to service areas in New York, and not to lend its expertise to arrangements whereby another entity would take custody of a completed nuclear power plant for the purpose of removing brand-new generating resources from the grid.

In fact, NYPA participation in this arrangement seems to be completely inconsistent with its legal responsibilities because not only does New York law provide that NYPA's mission is to add to, rather than destroy, energy production resources, but the same law even enjoins NYPA to cooperate with the NRC's licensing process under the Atomic Energy Act. Under the Shoreham Settlement Agreement, however, NYPA's role would make it a participant in an arrangement that at bottom was directed to frustrating the NRC's ability to carry out its licensing responsibilities under the Atomic Energy Act. Since the New York Power Authority itself is a licensee for several operating nuclear power plants, its trustees should carefully reconsider the decision they arrived at yesterday to participate in this enterprise.

If the New York Power Authority is ultimately successful in disassembling the plant, all possibility of recovering any of the plant's potential value as a generation source will have been fully and irreversibly destroyed. If Shoreham is decommissioned, New Yorkers and other citizens in the Northeast would be denied any opportunity to reassess this decision. This would constitute a significant setback to the Nation's energy policy objectives and to the economic interests of the citizens of the region. The Department strongly opposes the decommissioning of this valuable energy resource.

Because of permitting and construction lead times, it will be difficult or impossible to secure reliable equivalents to Seabrook and Shoreham for at least 5 years. While gas, coal, Canadian power imports, and increased conservation are all feasible alternatives, they may not be available soon enough, and in sufficient quantity, to avert supply difficulties and/or higher electricity costs. Nor is the required capacity likely to be available from other regions, since new transmission links would be required to import large quantities of power from these regions.

Canadian Power: The Northeast region relied on Canadian electricity imports for 7 percent (9 percent in New England) of the electricity it consumed in 1988. There are substantial undeveloped and economic hydroelectric resources in Quebec, some of which could be used to increase imports to New England. However, the amount of Canadian power available will depend on the pace at which these resources are developed, the rate at which demand for electricity grows within Quebec and Ontario, and the ability of utilities on both sides of the border to expand transmission facilities to accommodate increased power flow. The outlook for these is uncertain at best.

While U.S. electricity trade with Canada under the Free Trade Agreement has been and should continue to be mutually beneficial, we must be mindful that over the longer term only surpluses will be available for export, unless Canada develops resources with the express intent of serving the U.S. market. We have been advised by New England Electric System officials that Hydro Quebec recently informed the New England Power Pool (NEPOOL) that significant quantities of interruptible power which had been available previously may not be available for export in the contract year beginning September 1, 1989. This has been confirmed in staff conversations with Hydro Quebec. It would not be prudent to depend on Canadian exports alone to satisfy growing electric demand in New England.

Oil-Fired Power: For a simple combustion turbine generating unit fired by oil, construction and permitting lead times have been from two to four years. The levelized fixed and operating costs of electricity generated by this type of plant would range between 11 and 13 cents per kilowatt hour. A more efficient combined-cycle plant would have lower levelized costs of 8 to 10 cents per kilowatt hour, but would require a longer lead time of approximately five years. Thus, oil-fired power while the most likely alternative to Seabrook and Shoreham, would also be the most expensive.

The annual environmental emissions of combined-cycle oil units as replacements for Seabrook and Shoreham include 14,000 tons of nitrogen oxides and 8,000 tons of sulfur dioxides, which are precursors to acid rain. In addition, oil-fired replacements of the two plants will emit 7 million tons of carbon dioxide, which is one of the gases that some scientists believe is a major contributor to possible atmospheric warming.

Electric utilities in the Northeast already account for 55 percent of all oil burned in U.S. electricity generation. From a fuel-availability point of view, this makes the Northeast the least secure region in the country. Further dependence on imported oil from insecure sources will adversely affect our national energy security outlook. Accordingly, the oil-fired alternative has serious cost, environmental and energy security drawbacks for the Northeast.

Gas-Fired Power: Gas-fired combined-cycle units would be a cost-effective supplement to existing supplies in the region, but normal construction and permitting lead times would prevent completion before 1993. Gas-fired combustion turbines could be built more quickly, but they would be more expensive to operate.

The limited availability of natural gas in the Northeast is a further constraint on expanded gas-fired generation. Natural gas pipelines do not currently serve all areas in the region and existing pipeline capacity is often limited. Twenty-five projects have been proposed to expand natural gas pipeline capacity into the Northeast, but thus far only a small fraction of the additional capacity has been authorized by the Federal Energy Regulatory Commission (FERC). The in-service dates of many of these projects are uncertain since environmental opposition, eminent domain proceedings, construction difficulties, and state and local permitting reviews can cause extensive delays.

Although natural gas is a relatively clean-burning fossil fuel, replacing Seabrook and Shoreham with gas generation would add 10,000 tons of nitrogen oxides and 5 million tons of carbon dioxide.

Conversion of Nuclear Plants to Natural Gas: If either Seabrook or Shoreham is not brought on line, it may be possible to utilize some of the sunk investment to convert to gas-fired combined-cycle plants. This type of conversion by Consumers Power in

Michigan for their Midland plant is underway, and it permits many parts of the existing plant to be used.

A precise determination of the cost and economics of conversion would require extensive engineering studies. Extrapolating from the Midland experience, EIA estimates that the conversion option would produce power at a cost slightly less than the cost of power from a new combined-cycle facility. The lead time for the conversion would be about the same as that for a new combined-cycle facility. Natural gas pipeline capacity issues and environmental emissions for new gas combined-cycle units would apply to the conversion as well.

Coal-Fired Power: Coal-fired generation currently supplies 18 percent of the power in the Northeast. However, there has not been significant construction of coal-fired plants in the region for the last decade and strong environmental opposition makes the prospects for additional plants uncertain. Construction and permitting lead times would require 5 to 8 years for a new coal-fired plant. It is unrealistic to expect that a new coal-fired powerplant could be operating in the Northeast before the mid-1990's even under the most optimistic assumptions.

If Shoreham and Seabrook are replaced by coal-fired plants, annual emissions of sulfur dioxide, nitrogen oxides, and carbon dioxide would increase by 14,000 to 34,000 tons, 22,000 to 34,000 tons, and 11 million tons, respectively.

Power From Other Regions: One seemingly attractive option is to transmit power from regions with surplus capacity to regions with deficits. A 1985 study by the East Central Area Reliability Coordination Agreement (ECAR) and the Mid-Atlantic Area Council (MAAC) examined the possibilities for increased power transfers from the Midwest to the Northeast. The study concluded that by the time transmission capacity between the two regions could be expanded, power surpluses in the Midwest would have been depleted. The subsequent years of strong demand growth have confirmed the accuracy of this analysis. Additional transmission lines may someday be built to accommodate power flows from new powerplants in the Midwest. However, obtaining the necessary permits from several states would be difficult, and completing the new lines would take several years.

Conservation and Load Management: Substantial gains in end-use efficiency have been realized throughout the U.S. economy. Further opportunities to economically reduce the rate of electricity demand growth exist, and are increasingly integrated into utility plans. Utilities in the Northeast have undertaken substantial demand-side-management programs as part of their current long-term resource plans. These programs are designed to mitigate electricity demand growth by encouraging consumers to adopt more efficient equipment or modify their consumption.

In fact, the long-range resource plan for the New England Power Pool (NEPOOL) relies on new conservation and load management to provide a load reduction approximately equivalent to two thousand megawatts of capacity by the year 2000. This represents a very substantial level of conservation. It would be extremely difficult to significantly increase this level of conservation in a cost-effective manner. Furthermore, this planned conservation in no way obviates the requirement for new capacity in the near and medium term, as the NEPOOL plan clearly demonstrates.

Conservation and load management make good sense as a carefully planned adjunct to bringing Seabrook and Shoreham on line, and a means to reduce the region's current and future over-reliance on imported oil.

The following table summarizes the levelized fixed and operating costs of various alternative supply options in comparison to the costs of operating Seabrook and Shoreham in cents/kilowatt hour (1988$). Levelized costs for the closest supply alternatives are approximately twice the costs of Seabrook and Shoreham.

Alternative	Seabrook	Shoreham
Seabrook/Shoreham Operating Costs	2.7	2.8
Conversion to Gas Combined-cycle	4.8-5.0	5.1-5.3
Bulk Power/Imports	4.2-4.9	4.4-5.2
Natural Gas Combined-cycle	5.2	5.5
Coal Steam	5.6	6.0
Non-utility Base-load Sources	5.2-5.6	5.5-6.0
Natural Gas Combustion Turbine	6.5	6.7
Distillate Oil Combined-cycle	8.1	9.6
Distillate Oil Combustion Turbine	11.1	13.1

FOSSIL FUELS INVOLVE OTHER ENVIRONMENTAL FACTORS

Beyond greenhouse and acid rain concerns associated with additional fossil fuel plants, these forms of electricity generation raise other environmental concerns.

New coal-fired capacity would result in increases in the generation of solid and liquid wastes in the region. New coal-fired plants are required to include flue gas desulfurization units that produce sludge (a mixture of water, ash, and by-products) that must be transported to a landfill. The liquid from the sludge as well as other process wastewater and drainoff from the coal pile must also be treated and disposed.

Fossil-fired capacity would require use of additional land. Because coal-fired plants must include space for transportation and storage of coal, flue gas desulfurization units, and sludge storage and cleanup, they require more space than other plant types. A 800 megawatt coal-fired plant requires 500 acres for generating equipment and fuel storage and an additional 3000 acres for solid waste disposal.

Oil-fired and gas-fired combined-cycle plants require about one-half and one-third, respectively, of the area of an equivalent coal-fired plant (not including area for waste disposal). All of these plants must be located in or near environmental corridors near rivers or large bodies of water to provide adequate water for steam and plant cooling. Consequently, the environmental impacts of constructing a fossil steam powerplant include potential loss of wetlands, and disruption of ecosystems supporting indigenous marine, animal, and plant life.

Before any construction could begin, a construction permit would have to be obtained. Licensing activities that culminate with the award of a construction permit for a new powerplant depend on the regulatory requirements of the state and local jurisdiction. State reviews must be completed prior to any substantial commitment of resources. In recent years, the level of regulatory stringency and review has been increasing, stretching the construction licensing process for fossil-fired plants from 24 months to more than 60 months in some cases.

Building new fossil fuel plants could require fuel transporting and storage systems to be built. New oil- or gas-fired plants might require construction of new pipelines and new coal plants might require railroad lines to be built or waterways to be dredged. The cost of constructing new gas pipelines is approximately $1.2 to $1.6 million per mile. If additional reliance is placed on gas-fired capacity, new pipelines may need to be constructed to specific site locations. All of these activities could potentially disrupt ecosystems or other valued resources and would require construction permits.

Finally, new fossil fuel plants would require construction of new transmission lines to the grid. New transmission lines cost from a few hundred thousand to a million dollars per mile and require certification and siting permits. Purchases of power from other utilities or imports of power from Canada could also require additional transmission facilities.

CONTINUING IMPORTANCE OF NUCLEAR POWER

The U.S. has been a leader in commercial nuclear technology since we invented and introduced it in the early 1950's, and the U.S. is still the technological leader. Our economic trading competitors, particularly Japan and Europe, are moving ahead very vigorously with their civilian nuclear power industry. We should be as well. Nuclear energy, along with conservation and other advanced technologies, must play a vital role in the energy security of our Nation by helping to minimize the amount of oil we must import.

There are more than one hundred nuclear plants in operation in the U.S., most of which have excellent operating and safety records. These plants provide about 20% of our electricity. It is extremely unfortunate that some feel that safe and operable nuclear plants such as Shoreham and

Seabrook should be decommissioned at a time when we are concerned about our rising imports of foreign oil, and when there is growing concern about the environmental impacts of burning more fossil fuels.

The Department is currently sponsoring a program in cooperation with industry for certification at the Nuclear Regulatory Commission (NRC) of the next generation of reactors. These reactors will have improved economics, safety, and operating characteristics. These certified and standardized plants are expected to be available for ordering by utilities by the early to mid 1990s.

Although there have been some recent difficulties with states involving nuclear power, in the cases of Shoreham and Seabrook, there have also been some very positive experiences. In the case of the Limerick plant in Pennsylvania, the state put a cost cap on the plant which was fair and reasonable. As a result of good management by the utility, the plant is now 6 months ahead of schedule, $200 million under the cost cap, and it is essentially complete.

The Department intends to move aggressively to resolve issues related to nuclear waste. Progress can and must be made in implementing the Nuclear Waste Policy Amendments Act of 1987 to assure utilities that they can count on a safe, responsible, and permanent disposal system for civilian nuclear waste. Resolution of this issue is technologically within our grasp and can be done in a fiscally responsible manner. Substantial progress has been made in that the statutory site characterization plan for Yucca Mountain was issued. Currently, we are receiving comments on the plan from the Nuclear Regulatory Commission and the state of Nevada. Significant emphasis is being placed on developing the necessary quality assurance documents and procedures so that new site work can begin during FY 89. Pending a suitable site recommendation, we intend to submit a repository license application to the NRC by 1995, and begin storing waste by 2003. The Federal Government and the States will accord this issue the highest priority.

CONCLUSION

The electricity supply situation I have described to you is not a reassuring one. Today, the Northeast as a whole has an adequate, but shrinking, margin of reserve capacity to ensure reliable electricity service to the customers in that region. However, localized areas within the region currently have marginal or inadequate reserve margins.

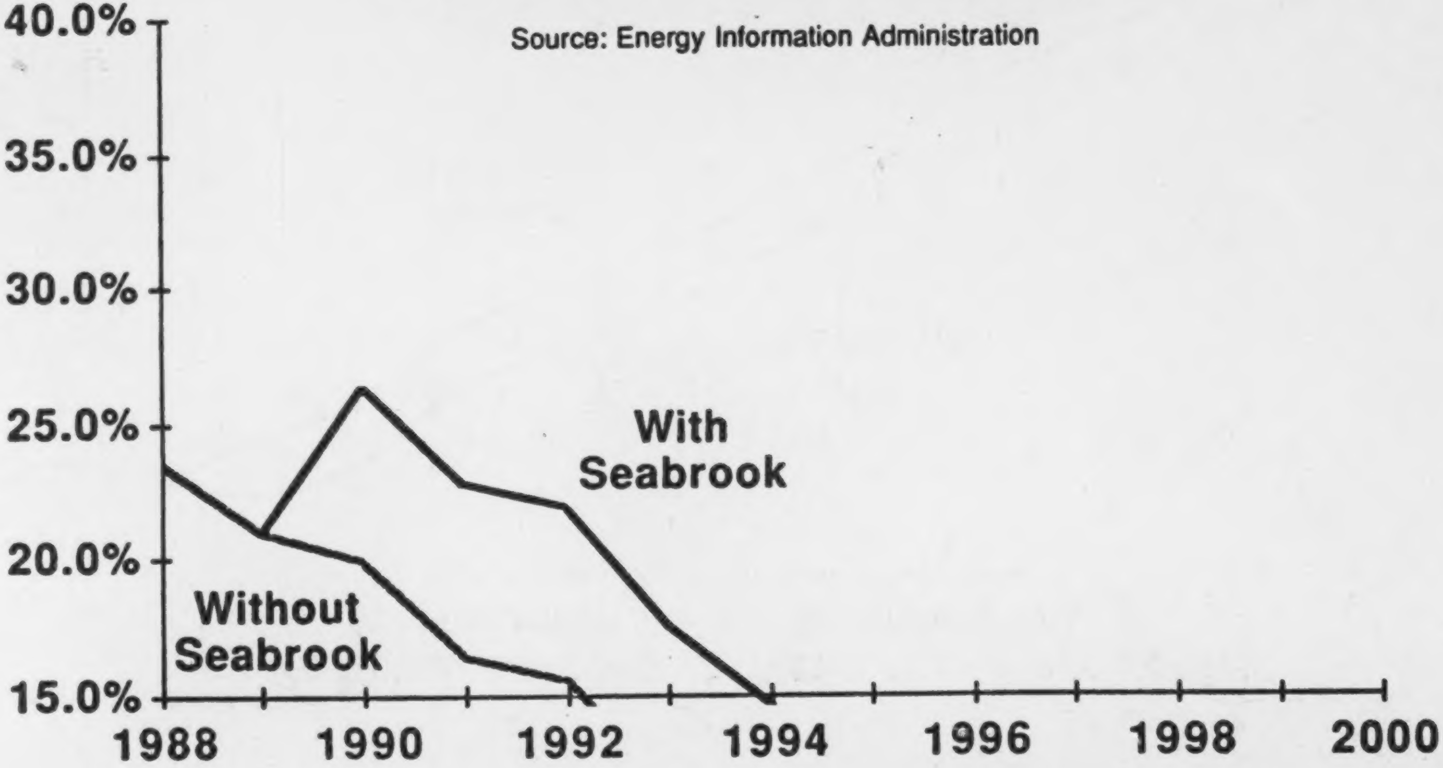
During the next decade, utilities in the region will probably have to add new generating capacity if long-term demand growth trends continue. If more recent trends continue, utilities in many localities will soon face reserve margins too low to preserve traditional reliability levels. An infirm electricity supply system can inhibit regional economic growth and diminish the quality of life of our citizens. The consequent increased reliance on imported oil from insecure sources worsens our national energy security.

Utilities, state and local governments, and consumers will face hard choices in the selection of fuels and technologies for future generating capacity. Some options for the near term are already foreclosed as a consequence of long lead times. But if we expect to make brownouts and rolling blackouts rare and uncommon events in the Northeast, the region will need strong and determined leadership. New generating capacity will be needed soon, even if the Shoreham and Seabrook plants are brought into service. If those already completed plants are not permitted to produce safe, economical and reliable electricity, then the near-term outlook for the electricity system in much of the Northeast is grim. The reliable supply of electricity in the Northeast is at a critical turning point.

Thank you for the opportunity to present the Department of Energy's perspective. I will be pleased to answer any questions at this time.

Chart I: Reserve Margins in New England

2.5% Annual Demand Growth 1988-2000

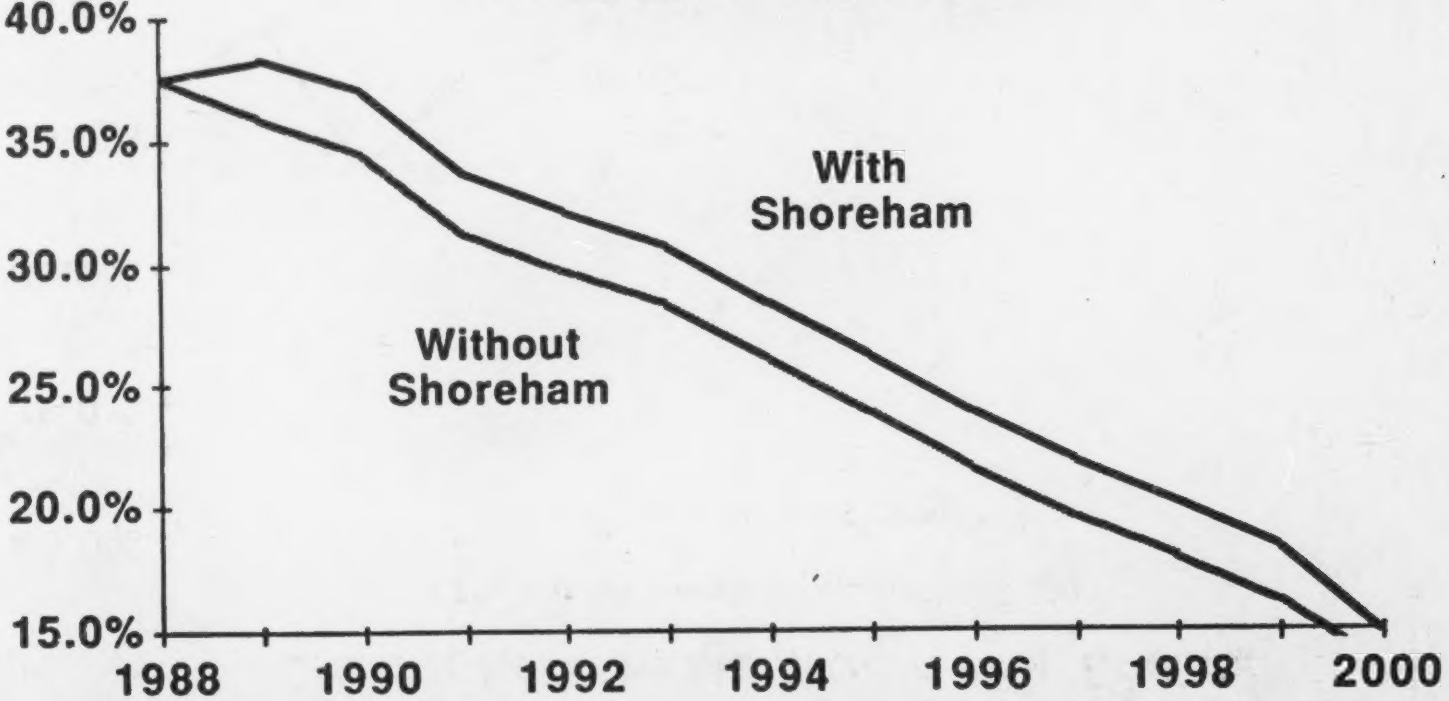


Source: Energy Information Administration

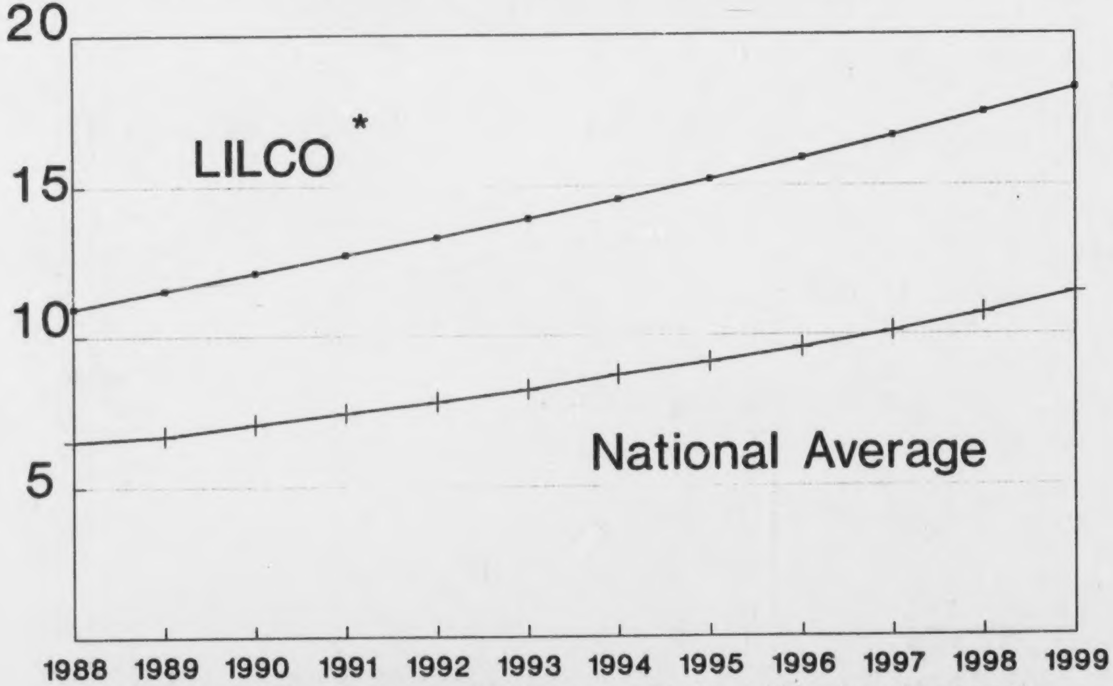
Chart II:
Reserve Margins in New York/New Jersey

1.6% Annual Demand Growth 1988-2000

Source: Energy Information Administration



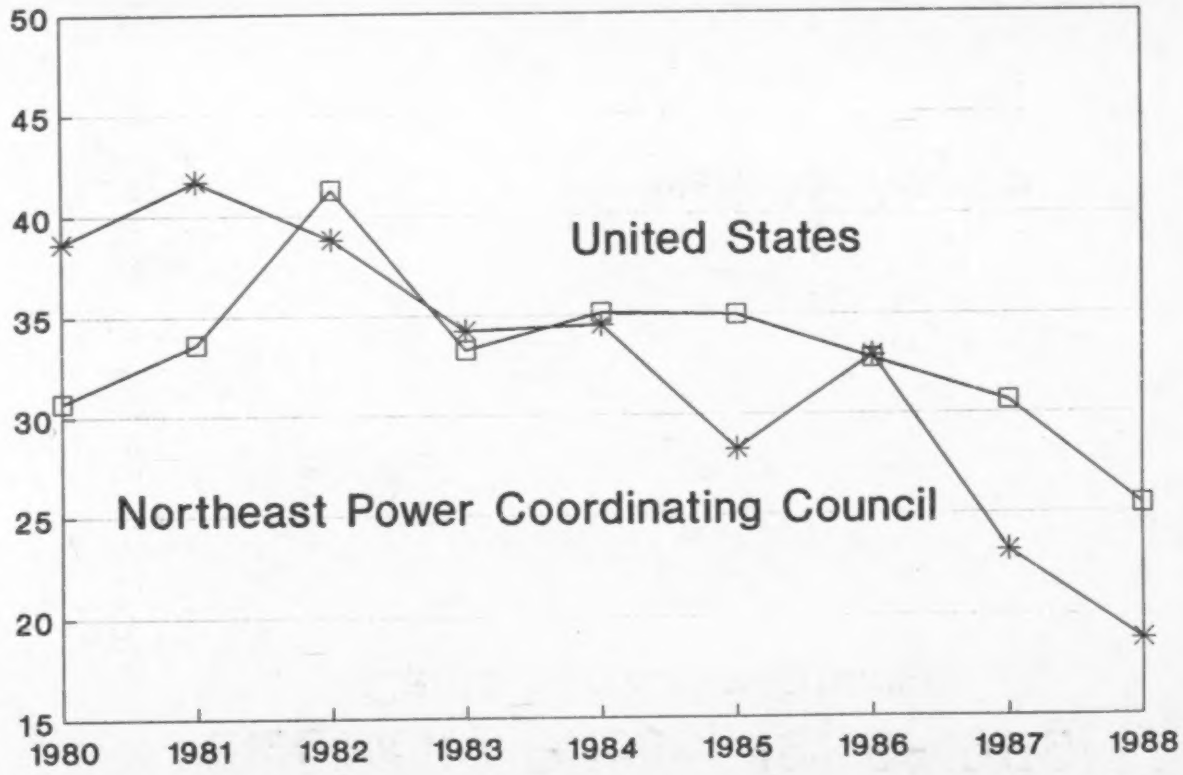
Electricity Prices, 1988-1999
(Cents per Kilowatthour)



Lilco Prices Include rate increases as proposed in the Shoreham Agreement

Source: Energy Information Administration

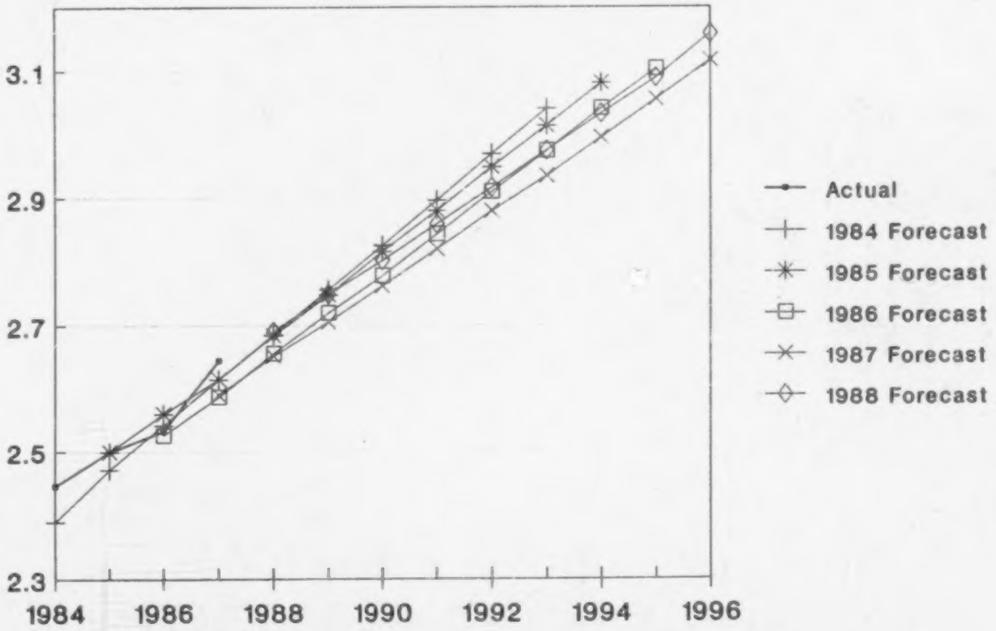
Reserve Margins, 1980-1988



Source: North American Electric Reliability Council, Supply and Demand, 1988 and previous editions

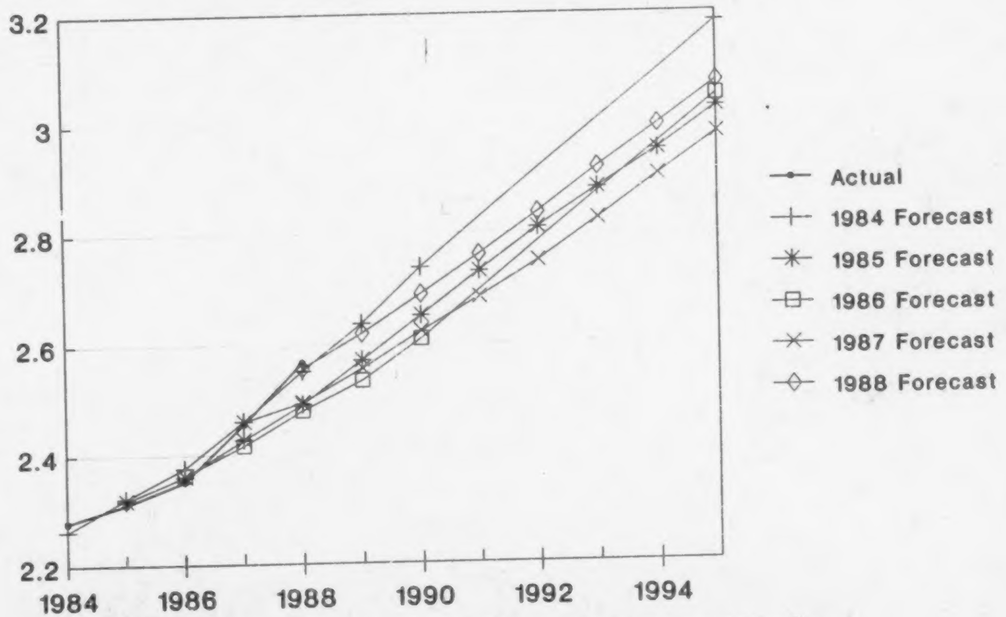
Electricity Needed to Serve Customers

(Trillion Kilowatthours)



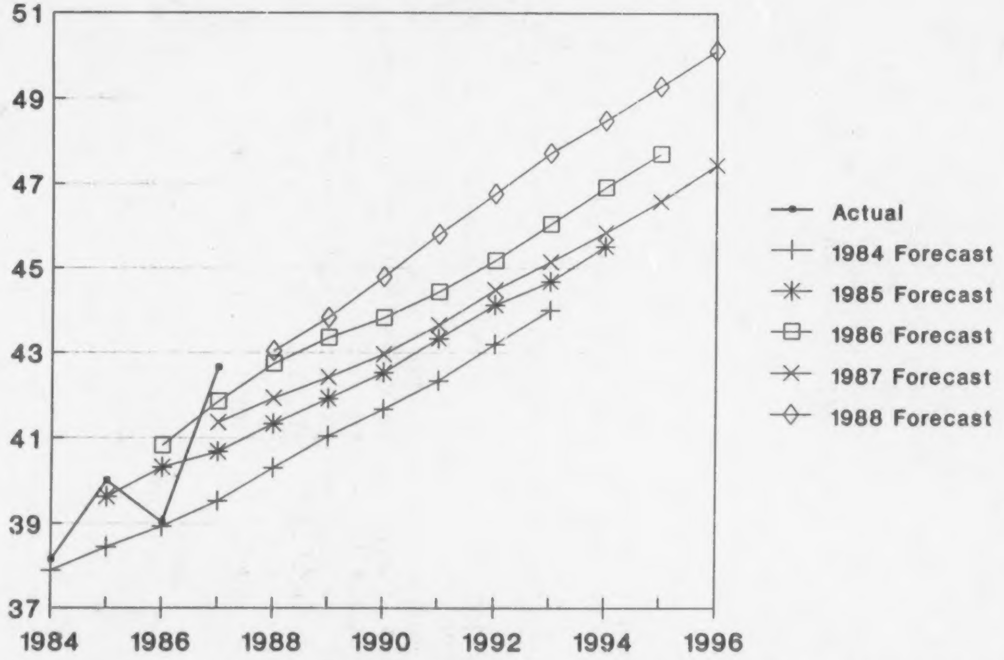
Source: North American Electric Reliability Council, Supply and Demand, 1988 and previous editions

EIA Projections of Electricity Sales
(Trillion Kilowatthours)



Source: Annual Energy Outlook 1988, and previous publications

NERC Actual and Projected Peak Summer Demands for NPCC
(Gigawatts)



Source: North American Electric Reliability Council, Supply and Demand, 1988 and previous editions

The **Chairman**. Thank you very much, Mr. Secretary.

Mr. Secretary, on July 8, 1988 a letter was sent to the Internal Revenue Service asking for an opinion as to whether or not the Shoreham plant could be written off for tax purposes, and a letter opinion came back, a copy of which I have here, stating in effect that this could be written off the tax return as a casualty loss.

Now I do not purport to be a tax lawyer by any means, but section 165 states as follows: "There shall be allowed as a deduction any loss sustained during the taxable year and not compensated for by insurance or otherwise."

In requesting this opinion from the IRS, the facts were given as follows: "Submission and approval of such a plan"—that is, an evacuation plan—"is a prerequisite for full power operation of the plant."

In other words, in asking for the opinion they set forth a state of facts, and in making the ruling the IRS said this holding is limited to the issue of whether an abandonment of plant A has occurred on these facts. This letter ruling is based on the taxpayer's representations.

To recount, in other words this ruling which says that this may be written off under section 165 of the Tax Code is based upon the representation, among other things, that "submission and approval of such a plan is a prerequisite for full power operation of the plant".

Now since July 8 it appears that things have changed or are about to change because full power operation of the plant is not dependent upon the local people cooperating or approving an evacuation plan. To the contrary, the NRC, at least for the purpose of the low power license and next week for the purpose of the full power license, may well conclude that the full power license can be granted without the local governing authorities cooperating or participating in such a plan.

In other words, the facts have changed since this IRS ruling has been granted.

Now my question to you is have you asked the IRS to relook at this situation in light of this potentially changed circumstance such as the likelihood that the NRC will vote for a full power license for Shoreham by the end of next week and also the likelihood that the plant will be ultimately needed to provide electricity?

Have you asked the IRS for such a ruling?

Mr. **Moore**. Mr. Chairman, not to my knowledge. We have a copy of that ruling. It is being reviewed by the General Counsel's Office of the Department of Energy.

What we may do with the completion of that analysis by the General Counsel is not yet known. This is an unusual situation. We have no direct line of authority here with the Internal Revenue Service. That is a proper matter for the Department of the Treasury.

We are, however, greatly concerned about this matter. We are looking at it, and I will have to say we will have to wait and see what the General Counsel tells us he thinks about this ruling before we decide what the Department will do with that information.

The CHAIRMAN. I must tell you, it seems to me bizarre that you can have a perfectly usable, useful asset, the operation of which is permitted, expressly sanctioned by the United States and the laws, and then just say, well, I do not want to use it so, therefore, it is a loss and I want the Federal taxpayers to pay for it.

Suppose I had an automobile as part of my law practice, for example, and it was ordinary and necessary for me to have that automobile in my law practice or in my widget factory or whatever business you want to assume. I went out one morning and said I do not like the color of this car, I am going to burn it up. So I strike a match and burn it up and try to write that off my tax return.

Is that self-inflicted loss, something that I ought to be able to get the Federal taxpayers to pay for? That is bizarre.

If they want to do that, it seems to me they ought to have to pay for it just as a principle of sandlot justice. Is that not correct?

Mr. MOORE. Senator, I think under any theory of writing it off there is going to be an amount left that the taxpayer has to pay; in this case LILCO, which I assume will pass on these costs in the rate structure to the ratepayers on Long Island.

We know this is not good energy policy. Of that we are absolutely certain. This is not in the best interest of the country. It is not in the best interest of the electric consumers on Long Island. It is not in the best interest of the businesses and the companies on Long Island that have to buy electricity and compete with companies in other parts of the country and, more importantly, with companies in other parts of the world.

We know it is not good energy policy. The tax policy is certainly questionable, and we have grave questions about it.

The CHAIRMAN. Would you be willing to ask the IRS to take another look at that?

Mr. MOORE. As soon as the General Counsel finishes his work, we will be in touch with your office as to what we think we can do or should do. Certainly, this is something that would be very proper for you as the Chairman and others in the Congress to question the Internal Revenue Service and the Treasury about, and we will do our part to try to be whatever help we can.

The CHAIRMAN. Has the Department or has anyone done any analysis as to the cost of treating this one way or the other for tax purposes, the cost to the taxpayers?

Mr. MOORE. No, Mr. Chairman, we have not. We do know that if the plant went on stream, it would be able to be depreciated as any other asset. Now what that means in terms of loss to the Treasury between writing it off for one way and writing it off over an operational time period, we have not looked at that.

The CHAIRMAN. Mr. Secretary, I understand that there is great difficulty in the Northeast in importing any more energy, particularly in the Long Island area, because the transmission lines are already fully committed; so that if you ran out of power, you could not purchase more from Canada or elsewhere even if it was available.

Are you familiar with that question?

Mr. MOORE. Mr. Chairman, we have been looking at that, and we do think there are problems there.

In looking at it right now, we have been increasing our electricity imports from Canada in recent years. The free trade agrement between the two countries makes this easier than in the past.

The problem is the Canadians at this point supply us, for the large part on an energy basis, meaning it is an interruptable power. They will supply us the power when they can as they can. If they are not able to supply electricity because of brownouts that they have or because of capacity problems they have, they cannot supply it in turn to us.

In fact, we know that the New England Power Pool has just recently been informed that the Canadians will not be able to guarantee them power from September 1 forward.

The CHAIRMAN. What I am talking about is a separate question from the importation of Canadian electricity, which we are importing a great deal and there is some question about the reliability of that, particularly the hydropower that is sensitive to lack of rain.

What I am talking about is particularly in this Long Island area, which as I understand the transmission lines coming into Long Island are full, and even if you had Canadian power available you could not import it. In other words, you have to generate locally whatever the power deficit is or, contrarily, build new transmission lines, which is exceedingly difficult in the Northeast owing to the difficulties of getting right of way through that congested area.

Is that correct, and if not correct would you supply the answer for the record?

Mr. MOORE. We do have most of the information you have asked for in our testimony we submitted for the record, which is to say that this is one of the alternatives we considered. If Shoreham closed down, can you simply buy additional electricity from someplace else, either the midwest or Canada, and can you carry it by transmission lines into Long Island?

It is the conclusion of a number of studies, ours as well as those done by the East Central Area Reliability Coordinating Agreement and the Mid-Atlantic Area Council, that you cannot depend upon that as a power source coming out of the midwest. We are not sure that by the time you have built the additional towers and transmission lines, assuming you get the permits for that, that there would still be excess capacity in that part of the country to send.

The same thing is true in Canada. They are already beginning to inform us on the energy supply basis, they cannot be tied down to a guarantee they can supply that electricity. They have to build additional dams and generating facilities themselves, so who knows when that might be done.

You are quite right. You have to go to the same question of additional towers and transmission lines or additional lines on existing towers coming into Long Island to get the electricity down to Long Island or into New England if the power is there.

At this point, there is a possibility of an additional time delay in laying additional lines or building additional towers or both, and those time delays can run, who knows, three, four, five years.

Additionally, somebody has to pay for that. The cost of that is going to be built into the rate base on top of what the people are already going to be paying in Long Island for the closing down and decommissioning of Shoreham. The same thing is true of Seabrook if by some unfortunate mishap it would have to close.

The **Chairman**. Recently the actual growth in electric demand in the Northeast has outstripped projections by about 100 percent. In other words, that growth has been about twice what has been projected.

Do you expect these growth rates to return to the anticipated lower levels, or do you think we have to revise the estimates? What is your projection on that?

Mr. **Moore**. We think the growth rates in New England, which have been 6 percent the last two years, are probably an aberration, we are expecting a 2.5 percent growth rate in that area.

The case of Long Island is different. It has been 4 percent for the last six years. We have no reason to believe that is going to taper off. Six years is a statistically more significant period to look at, and so in six years we have no reason to believe that the rate of growth is going to go down there.

The **Chairman**. We will have to revise those projections for the Long Island area?

Mr. **Moore**. For the Long Island area, yes. For the New York/New Jersey region, no. For that region, the anticipated growth rate is probably about right; but not for Long Island.

The **Chairman**. Now in the Long Island area, I understand that their reliability percentage has been running at about 4 percent, whereas the usual reliability percentage which the industry likes to operate on is about 17 percent.

Now I understand there are different definitions of reliability, and you can argue about the right definition, but am I correct about the proportions here, that the reliability proportion on which Long Island is operating is a fraction of what is desired for reliability?

Mr. **Moore**. We know it as it is measured and generally accepted by the Northeastern group is that it should be, and I think the New York Power Pool requires, 18 percent.

Our figures show according to our Energy Information Adminstration, that Long Island is going to be below the 18 percent level this year. They have had problems in the past, and no matter how you measure it, it appears to us they are facing continued shortages by the end of this year. There is no way you can replace, in the time we are looking at, any kind of alternative to make up and to get them above that margin.

Mr. Chairman, a moment ago you asked a question which is not in our testimony about the capacity of the transmission lines coming into Long Island. Staff has given me these figures, that presently there is a 345 kV line, a 138 kV line, and the plan already for 1991 is an additional 345 kV line, which is somewhere in the range of 600 to 700 megawatts of electricity on those power lines, which is still below Shoreham. So Shoreham is still needed.

So just the transmission lines that are there now and which they are talking about bringing in will not take care of the capacity of electricity needed on Long Island.

The **Chairman**. I have just been given a sheet here by staff on the status of LILCO capacity. The source is the DOE Office of Energy Emergencies. It states that the estimated adjusted reserve is 7 percent; however, part of this capacity can be wheeled through the NEPOOL system only if NEPOOL, the New England Power Pool, is not experiencing peak demands.

If this 100 megawatts cannot be provided because of wheeling problems, then the adjusted reserve margin would drop to 4.3 percent, which is marginal in terms of reliability. In other words, if NEPOOL is at some power deficit, then they could not get the 100 megawatts, which would put LILCO in severe distress for reliability. Is that correct?

Mr. MOORE. Yes. We are looking at the fact that the 18 percent capacity is supposed to be above your peakload, and if you are below that reserve margin then you are in trouble in being able to provide electric service to your customers.

If the people you hope to have power wheeled in from are telling you they may give you a portion of that, assuming they are not having peakload problems and dips below their margins, then you are really strapping this thing together with baling wire and bubble gum. That is not the way the system is supposed to work. We are supposed to be supplying reasonable, reliable power. You are not doing that under those circumstances.

That is what we are very concerned about. We are concerned about the consumers on Long Island, both industrial, business and individual homeowners.

The CHAIRMAN. Thank you very much, Mr. Moore. I have many other areas that need to be covered, but I do not want to cover the whole field with you. We want to leave time for the other witnesses.

Senator McClure.

Senator McCLURE. Thank you, Mr. Chairman.

I believe these charts are attached to your testimony and made a part of your testimony; is that correct? These deal with reserve margins in New England, reserve margins in New York, New Jersey, electricity prices, reserve margins, comparing the United States reserve margins with the Northeast Power Coordinating Council, electricity needed to serve customers, EIA projections of electricity sales, and projected and peak summer demands.

Those are all charts attached to and part of your testimony; is that correct?

Mr. MOORE. Mr. Senator, chart 1, the reserve margins in New England, and chart 2, the reserve margins in New York and New Jersey, are part of my testimony. The remaining charts were submitted to the committee at the request of the committee from the Energy Information Adminstration.

Senator McCLURE. All right. Now you are familiar with those charts as well?

Mr. MOORE. Yes, Senator.

Senator McCLURE. The reason I ask is I want to make certain that I understand the charts that show electricity needed to serve customers.

Now the source attributed for that chart is the North American Electric Reliability Council, and those are national figures; is that correct?

Mr. MOORE. Yes.

Senator McCLURE. They are not just Northeast region?

Mr. MOORE. No, those are national.

Senator MCCLURE. Similarly, the next chart dealing with the projections of electricity sales?

Mr. MOORE. That is national as well, Senator.

Senator MCCLURE. The following chart is national as well on actual and projected peak summer demands?

Mr. MOORE. Yes.

No, Senator. The one you are looking at, actual and projected peak summer demands for NPCC, is for the Northeast region.

Senator MCCLURE. Thank you.

Now that latter one for the region shows on the charts the actual demand as experienced. It shows the 1984 forecast, 1985 forecast, 1986 forecast, 1987 forecast and the 1988 forecast.

I note that in that connection the highest demand projection is the 1988 forecast; and similarly, the next highest was the 1986 forecast. The 1987 forecast was slightly below the 1986 forecast. The 1985 forecast was very close to the 1987 forecast.

The reason I call attention to that is there is a considerable variation between those forecasts made in the period over five years, and they vary both upward and downward from the previous year forecast.

Do you expect that a 1989 forecast is going to be above or below a 1988 forecast based upon that record?

Mr. MOORE. Senator, we do not know. The forecasting in the previous charts has been very accurate over the Nation over the course of a year. The forecasting in this area of the country during the peak summer demands has been very difficult to forecast. That is a hard thing to figure. How hot is it going to be? We had a hot summer last summer. We just do not know. That is a tougher thing to forecast. To give you statistics that are really sound is difficult because we do not know how to interpret the data except to say that we have problems forecasting peak demand periods in the summer in the Northeastern part of the country.

Senator MCCLURE. I note that the 1988 forecast is the highest of the several given; yet, the actual demand for 1987 as shown on this chart was equal to the highest forecast for 1988.

Mr. MOORE. The figures speak for themselves. You are correct. So far, the forecasting we have done has not been that accurate on these peak demands in the summer months in the Northeast.

Senator MCCLURE. For a long period of time, energy consumption in this country grew almost exactly in proportion to GNP growth; is that not correct?

Mr. MOORE. Yes.

Senator MCCLURE. That was true until 1969 for many years prior to 1969. In 1969 and 1970, energy growth was less than GNP growth, and by 1971 we were back about on track with GNP growth.

Now during the 1970s with tremendous changes in the pricing of electricity, that relationship did not continue to be true. GNP growth in the late 1980s, however, has again projected very close correlation with total energy consumption growth.

In the late 1980s, is it true that electricity growth has been greater and more rapid than the consumption of all energy?

Mr. MOORE. That would be our opinion, yes, Senator.

Senator McClure. Do we expect that trend to continue, or is there reason to expect that it will change?

Mr. Moore. We think the trend will continue. We know of no reason why it would abate at this point.

Senator McClure. If that is true, then electricity growth rates are likely to outstrip GNP over the immediate future?

Mr. Moore. No, it will probably grow at about the same rate as GNP—which will be faster than the growth rate for energy consumption in general.

Senator McClure. The reason I ask that is we certainly have seen a reduction in total energy consumption as we went through a period of high prices, reduced demand, conservation and a lot of shifting. Part of that load shifting has apparently been in favor of electricity growth.

If that is true and if that trend continues, and I think there are a number of reasons why it took place and why it is taking place which are likely to continue, then electricity growth rates are likely to be on the high side rather than on the low side of forecast growth rates.

Mr. Moore. Senator, I think you or the Chairman made the point earlier. The point is we are supposed to be building and have on line installed capacity of an 18 to 20 percent reserve to take care of just these kinds of things. If we do not have that, then the citizens we all serve are being shortchanged. The quality of their life is going to be diminished because they cannot run their air conditioning units this summer on Long Island.

All the industries there may have to think about moving or they cannot operate competitively with other parts of the country or with foreign countries. Thereby, the national security of the country is endangered, especially if you have to import more oil to replace that capacity.

So the point you are making, as we see it, is from a national energy policy you are supposed to have that reserve capacity. If you dismantle and do not allow to operate these two plants that have become the focus of today's hearing, then obviously you are doing nothing to assist that margin, and in the case of LILCO and Long Island you are falling dangerously below that margin immediately this year.

Senator McClure. Thank you for that statement. I concur wholeheartedly.

I do not mean to belabor the subject, but I do want to call attention to a portion of your testimony that you did not highlight but which I think deserves some highlighting.

It is quite likely that the Congress will this year under the strong support of the administration move towards acid rain legislation. I expect Congress will probably enact something this year.

Last year, global warming became an issue of great concern to the country and to the world, as I think it should, and we are going to be focusing more attention on it this year, although we perhaps are less ready to come to grips with proposed solutions than we are on acid rain legislation.

On pages 8, 9 and 10 of your testimony you outline the increased emissions that will come from alternative generating capacity that will consume fossil fuels, whether it is natural gas or oil.

Without going through that in detail, those are substantial contributions to the problems that we have outlined, acid rain being a problem that afflicts the Northeastern United States more than anywhere else in the United States.

Imported oil questions contribute also to the economic questions that we confront in this country as well as imports from Canada. I want to just stress that for a moment. I do not recall the trade balance figures with Canada, but we have a national trade balance deficit in international trade of $135 to $150 billion, in that range as I recall the figures.

That is a serious problem for this country. I am hearing more and more people who are concerned about the fact that there is a great deal of foreign investment in this country, that buildings and industries and real estate are being purchased by foreigners. That is, as I view it, the inevitable result of consuming more than we produce.

If we consume from foreign countries more than we sell to them, inevitably they built up currency surpluses. That reflow of currency is marked by investments in this country.

I think it would be correct to say that that includes also not just the imports of oil from farther away but imports of electricity from Canada; am I not correct?

Mr. MOORE. Yes, that certainly would affect our balance of trade.

Senator MCCLURE. Balance of trade is a problem that we are also trying to address. So whether it is national security in terms of the ability to deal with our own needs in a secure manner and the needs of our citizens in ways that we control and can assure them their supply, whether it be in terms of environmental impact in terms of both acid rain and global warming, in terms of economic flows and balance of payment deficits, it is important that we have within our own country nonpolluting sources of energy if possible.

The staff has just handed me a note which I think is correct. The imports of energy from Canada in the Northeastern region are in the order of $1 billion per year. Is that correct? There is $1 billion per year of Canadian imports of energy in the Northeast region?

Mr. MOORE. We think that figure is accurate, Senator.

Senator MCCLURE. Mr. Secretary, I commend you for your statement and for the position that is being taken by the Department of Energy, and I would commend your statement to thoughtful persons who are really concerned about these several issues to take the time to read the statement and analyze what it contains, and to also look at the charts that are appended and the other charts to which I made reference as we try to determine what kind of policy we should have for our country and how that affects the Northeast region.

Thank you very much, Mr. Secretary, and thank you, Mr. Chairman.

The CHAIRMAN. Thank you, Senator McClure.

Mr. MOORE. Senator, you raised several points that I think we ought to comment on. You did call attention to pages 8, 9 and 10 where we deal with the environmental aspect, and we have gone into some effort in trying to calculate that. I did call attention to that in my statement, but I simply say this. No matter what form of fossil fuel you use to replace Shoreham or Seabrook, you are talking about additional nitrogen oxide and carbon dioxide emissions into the air of a substantial amount.

The cleanest burning of all would be the gas-fired boilers, and there you are talking about 10,000 tons of nitrogen oxide a year and 5 million tons of carbon dioxide a year. To us, that is aggravating a problem we do not yet have a solution to.

That is not the kind of alternative solution, therefore, you ought to be looking for if you are thinking about electric generating capacity. It is one that exacerbates other problems we have.

A second point on oil imports, the Department of Energy cannot stress strongly enough that anything you do to increase oil imports in this country is against the best interest of the national security of this country. It is not sound energy policy. The Northeastern part of the United States is the most dependent upon insecure sources of imported oil. The idea of building additional oil-fired boilers to generate electricity flys in the face of any kind of sound energy policy or balance of trade or economic policy.

Lastly, we are concerned. While we in Louisiana produce a lot of natural gas and we think natural gas ought to be used a lot more than it is now, you have problems on Long Island. We do not believe the gas is there now. The pipelines are not there to deliver the kind of gas you are talking about to generate the kind of power to replace a Shoreham power plant. It is not in New England, either.

We have all kinds of difficulties in permitting pipelines. That is another problem we need to deal with before this committee at some other time. We have real problems with that. The pipelines are not there now. They have to be permitted, and then they have to be constructed, and the power plants have to be constructed. You are talking about a lead time, we think, of three to five years. There again, the ratepayers have to pay for that in Long Island on top of the facility they already have at Shoreham.

That is why we come to those conclusions, those figures, that somebody is going to pay twice, if not three times, for that generating capacity.

Senator McClure. If I may, Mr. Chairman, just one other area to go into in a little more depth, and that is the projected demand.

In looking at the growth figures of EIA, I notice that the assumed growth rate for the Northeast region is 1.6 percent; is that correct?

Mr. Moore. It is 1.9 percent over all for that region, and 2.5 percent for New England. As we say, Long Island has experienced in the last six years a growth of 4 percent, and indeed the last two years New England has grown 6 percent. We think that may be an aberration, so EIA is not willing to say that the growth is going to be 6 percent in the future. We do not know. We have to wait and see. We are still predicting 2.5 percent for New England, but the Northeastern region as a whole is less than that, and Long Island is greater than that.

Senator McClure. The North American Electric Reliability Council is using a figure of 2 percent at the same time that EIA is using 1.6 percent. I mention that because it appears that EIA projections are on the conservative side of the estimating range.

The U.S. Council for Energy Awareness is assuming a figure of 3 percent and has been. All of those are significantly below the 5 to 6 percent growth rates actually experienced over the last five years.

Mr. MOORE. That simply bears up to the fact, Senator, that our people are doing the best they can in the EIA to come up with the most reasonable numbers they can, not to cry wolf and not to overemphasize or to exaggerate the needs of those regions. Our testimony and our conclusions are based on those conservative figures. The capacity is not going to be there and, therefore, we think you need these two plants plus additional capacity to take care of the citizens of those regions in the future.

Senator MCCLURE. I want to make just two points with respect to the forecasts. When we talked about the difference between 2 percent and 3 percent, that is one percentage point, but it is a 50 percent difference. That is an enormous difference. It is not just a very narrow difference. It is a very large difference.

If, for instance, we are off by just 1 percent in the projection for the year 2000, New York would be short in electricity by the equivalent of six Shoreham-size plants, and New England would be short by the equivalent of nearly three Seabrook-size plants.

These are enormous differences, and when you look at the time frame of six to 10 years for making projections, making plans, responding, getting plants on line, there is an enormous risk if we are off by one percentage point between our projections and plans and the actual demand growth.

Again, Mr. Chairman, thank you very much.

The CHAIRMAN. Mr. Secretary, thank you very much for excellent testimony. Your grade is an A-plus on your first testimony.

Mr. MOORE. Thank you, Senator.

The CHAIRMAN. Next, for the other side of this question we have a panel with our old friend, Peter Bradford, Chairman of the Public Service Commission of New York, formerly of the NRC, who is accompanied by William E. Davis, who is Executive Deputy Commissioner of the New York State Energy Office; and Mr. Richard M. Flynn, Chairman of the New York Power Authority.

Gentlemen, welcome to the committee. I would suppose Mr. Bradford would lead off, but that is up to you.

STATEMENT OF PETER A BRADFORD, CHAIRMAN, PUBLIC SERVICE COMMISSION, STATE OF NEW YORK, ACCOMPANIED BY WILLIAM E. DAVIS, EXECUTIVE DEPUTY COMMISSIONER, NEW YORK STATE ENERGY OFFICE

Mr. BRADFORD. Senator Johnston, I appreciate being invited to this hearing. As I listened to your statement and to Senator McClure and to that of Under Secretary Moore, I was struck by a feeling of deja vu. For better or worse, I have been in the energy regulation business now for close to 20 years, and I think it was probably in about 1974 or 1975 that I sat at hearings perhaps in this very room at which we were told that the Northeast would face an extreme danger of power shortages without power from nuclear plants that were then on the drawing boards but whose construction was considered to be jeopardized by the regulatory policies of the states in which they were located.

Those plants were a couple of Montague units in Massachusetts, a couple of Charleston units in Rhode Island, Pilgrim 2 and 3, Seabrook 2, Sterling, Jamesport and probably two or three others. In the following years all of those plants were cancelled. The predicted blackouts, of course, have not materialized. Billions of dollars were spent there and elsewhere in the country in pursuit of those units.

I mention that just as a caution to the proposition that it is possible to err on the other side as well; and indeed, this country has done so over the last two decades at great cost to itself.

I did want to commend Under Secretary Moore. He has absorbed an extraordinary amount of information on his first day at the office, and I am hopeful that perhaps on his second day he can learn why so much of it is flawed and also that he can learn the wisdom of consulting with relevant officials in the states about which he testifies to eloquently.

You have described so far a New York and a New England energy situation that simply does not exist. New York does not face blackouts or brownouts this summer, certainly not blackouts that Shoreham could help to avert.

I cannot speak with the same familiarity about the New England situation anymore, having left regulation in that region two years ago; but at that time I would have certainly made the same statement with regard to Seabrook; that is, that the region will not face blackouts without Seabrook in any particular summer.

The characteristics of the New England utilities at that time that concerned me was that they were, in my view, artificially creating a case for Seabrook by paying too little attention, for example, to acquiring interruptable capacity in their own regions, by showing little or no interest in the Central Main Power Company, then pending Hydro Quebec Purchase which has since been turned down in part I think for that lack of interest.

Some of them had been co-generators not to come on line and provide power to them. Others have been complaining to their commissions that they need to reduce rates to industrial customers in order to keep them on the system, which is scarcely the behavior that you would expect from utilities facing shortages; that is, they want to avoid self-generation by the industrial customers.

I hope at some point you will hear from New England regulators and energy policy planners who are more current with that situation than I am any more, because I do think that there is another side to the story in that region as well.

As you noted, I have previously served on the Nuclear Regulatory Commission. I have been Chairman of the Maine Public Utilities Commission. Power supply has been a large part of my job, and I certainly have nothing to gain and a great deal to lose if there are power shortages and blackouts in the state in which I serve at this time.

I will begin today with an overview of the state's electricity supply and demand picture. I have substantially compressed the testimony we have submitted to you, and much of the backup material is in that but I will not dwell on it this morning.

I will take a close look at the problems faced by Long Island.

I will also address the specific concerns set forth in your letter of invitation, the role of Canadian electricity imports, plans for gas-fired co-generation, and the closure of the Shoreham nuclear plant.

I will conclude by mentioning some areas in which I think the committee can be especially helpful.

The overall condition of electricity supply and demand in New York State is good. The power pool and State Government forecasts show statewide available capacity is expected to exceed the projected load plus the required reserve margin well into the 1990s.

Long Island, which lacks the strong transmission ties that connect with other areas of the state, faces short-term supply difficulties with or without the Shoreham nuclear power station. The Long Island situation will be discussed separately in a moment.

For the rest of the century, though, the rest of New York will have a projected surplus over the 22 percent reserve margin without the construction of traditional utility central generating plants. No deficiencies are anticipated.

Our commission embraced the use of competitive bidding to choose among future electric generation supplies from third-party producers in an order issued in June of 1988. The proposed bidding processes and requests for proposal were received from all seven utilities in late 1988.

Competitive bidding will be the predominant mechanism by which New York's utilities screen power supplies to meet their needs over the next 10 years. It is likely to result in the construction of smaller power plants compared to the large central station plants we have seen in the past. These plants will have much shorter lead times for coming on line.

In addition, the weighting systems to be used in evaluating the bids give particular weight to environmental impacts.

We are currently working in concert with other State agencies on a State energy plant that will help to guide the bidding processes as they unfold over the next several years.

In addition, conservation will play a substantially greater role in supplying the state's electricity needs in the 1900s. For the last five years, New York's utilities have been increasing their commitment to demandside management. Resource commitments expanded from $18 million in 1985 to approximately $100 million budgeted for 1989.

Long-range plans are being adopted for all New York utilities that can reduce demand by as much as 2,600 megawatts by the year 2000.

Utility support for demandside management, though, has in the past been undercut by the fact that these programs often reduce earnings. A major element of our strategy is to make the profit greatest on the approach that best serves the customers, just as a free and competitive market should.

I am glad to see that this committee is also considering legislation from Senator Wirth and many others that encourages this approach as one antidote to global warming.

As to Canadian purchases, I will be very brief. New York State is not now overdependent on Canadian purchases for firm capacity, and we do not expect that it will be so in the future. I will leave further discussion of this issue to Mr. Flynn.

As to gas-fired co-generation, about half of the projected capacity from independent power production projects on the drawing boards in New York depend on gas as a fuel. Assuming the availability of gas supplies at prices that will make electric generation by gas economic, growth and demand by both firm gas customers and the current and emerging electric generation market will place a strain on existing actual gas transmission systems.

To accommodate the increased demands in New England, New York is experiencing a surge of applications to construct new pipelines in and across the state. The most notable of these projects are the Iroquois Gas Transmission System and the Tennessee-Niagara Import Project.

Of the currently planned 3,050 megawatts of gas co-generation in New York, 40 percent of 1,200 megawatts worth has reserved capacity on gas transmission systems, and 60 percent, representing 1,850 megawatts, has not.

While it is expected that supplies will be available to serve these loads, the interstate pipeline delivery system serving downstate New York customers is now constrained. Additional capacity to serve these loads will involve the upgrading of existing pipelines or construction of new pipeline systems.

The three existing pipeline systems serving Long Island are operating at capacity. Each increment of additional firm supply has required a system expansion to deliver additional volumes.

Let me note, however, that our short- and long-term electric supply forecasts do not rely on all or even most of this planned gas-fired co-generation. We have been especially conservative in forecasting availability of generation from this source, recognizing the uncertainties associated with gas transmission availability and the economics of gas supply.

The final topic which you asked me to address is Long Island and Shoreham. Based on a summer 1989 forecasted load of about 3,870 megawatts and a 109 megawatt load reduction due to conservation programs described in detail in my full testimony. LILCO will achieve the power pool's requisite 18 percent reserve margin, but the situation is not a comfortable one. LILCO will be purchasing almost 600 megawatts of electricity from sources outside its service territory, and it is estimating conservation at more than twice the 1988 reductions.

Further, the company has continued its extraordinary power plant maintenance program, and the remaining work needed to prepare its generating units for this summer is expected to be completed before June 1, 1989.

Additional capacity not reflected in the above figures is expected from the three combustion turbines which are scheduled to come into full service on July 15, August 1, and August 22. When these three units reach reliable operating status, the supply situation improves markedly. These projects are on schedule, and LILCO expects no delays.

Unanticipated growth in demand, of course, the loss of a generating unit availability or transmission difficulties are the contingencies that could cause trouble this summer.

As I have noted above, in recent years the electric load on Long Island has been growing rapidly and beyond that forecast. Although recent load growth estimates have been on the order of 2 percent, load growth over the last five years has averaged something in excess of 3 percent.

Beyond 1989, the situation as we see it on Long Island improves steadily. There are four essential forecasts that shape that outlook.

We forecast aggressive demandside management as ordered by the commission and now subscribed to by LILCO to contain the growth in the LILCO load, increasing from a projected 109 megawatt peakload savings in 1989 to over 450 megawatts of savings by 2000.

We expect a new transmission cable under Long Island Sound to be in service before the summer of 1991. We have forecast significant penetration by independent power producers in response to the commission's and the company's bidding initiatives. This forecast in its later years, as I have noted, does require expanded gas pipeline capacity.

In addition, the New York Power Authority will be a builder of last resort for generation needed for supply on Long Island.

You have asked and indeed the foregoing testimony would compel it in any case that I address Shoreham. The deadlock and uncertainty concerning operation of the Shoreham nuclear power plant has for several years jeopardized on Long Island the fundamental goal of electric utility regulation which is the assurance of reliable and reasonably priced power supply.

The resulting uncertainty has raised costs. It has sapped LILCO's financial resources. It has inhibited power supply planning. It has consumed the attention of the company's top management, and it has poisoned the company's relationship with its customers and the government that they elect. Our commission has found it in no one's interest for the controversy to continue.

Recognizing the necessity of breaking the deadlock over Shoreham, the Public Service Commission encouraged the parties involved to work together to end the controversy over the plant's operation.

The commission's unanimous December 1987 decision did not take sides as to the merits of the company's effort to license Shoreham, but instead told the company and the parties involved surrounding Shoreham that an end to the deadlock was essential for the Long Island community to enjoy a stable future with the assurance that its power supply would be safe, adequate and reasonably priced.

Many of the parties normally involved in the rate proceedings of LILCO including the company itself then proceeded to reach a settlement calling for the sale and decommissioning of the Shoreham plant. The settlement anticipated that rate increases only slightly above the projected rate of inflation over the next 10 years would be required to restore the company's financial condition. Three annual rate increases of 5 percent were set in the settlement, and rates for the remaining seven years were targeted at about 4.75 percent per year increases.

These increases are lower, let me stress, than those that would have been required by Shoreham operation during this time; that is, this settlement is cheaper for ratepayer than operating Shoreham over the next decade would have been.

The agreement also provided a multi-faceted plan for meeting Long Island's need for additional power over the next decade without Shoreham. Although company studies indicated that the operation of Shoreham might be a slightly less costly alternative for customers over the full 40 year life, this result, of course, was dependent on intrinsically uncertain variables such as 40 year estimates of capacity factors, fuel costs, inflation, financing costs, post-operational capital additions, operation and maintenance costs, and NRC decisions affecting plant activities in life span.

Satisfied that the settlement presented the best available means to end the Shoreham controversy, the commission approved it in November 1988. That settlement, however, failed to become effective for want of legislative approval which was one of the conditions that the parties had set forth.

Nevertheless, a settlement was revived on February 28 of this year when LILCO and Governor Cuomo signed a new agreement once again calling for Shoreham's dismantling. This time the settlement contained no explicit rate provisions and did not require legislative approval.

The Public Service Commission at its most recent session on April 5 approved the new agreement and established the three-year firm rate plan. As of this time, further approvals required to make the agreement effective include the company's board of directors, the company's shareholders, and the Long Island Power Authority.

Assuming those approvals are obtained within the prescribed time frame, LILCO will transfer Shoreham assets to Long Island Power Authority, which in turn will contract for its decommissioning with a New York Power Authority. The transfer of Shoreham will be made pursuant to an asset transfer agreement that has been negotiated between the company and the Long Island Power Authority.

Now, as paradoxical as it seems, Shoreham would not have been a great asset to the Long Island power supply situation in the near future. In part, this is due to Long Island's unique circumstances. Because of the transmission constraints and because nuclear units are not reliable in their earlier years of operation, at least in their earlier years of operation, and because Shoreham would be much the largest unit on the LILCO system, much of the generating capacity that is now being built to replace Shoreham would have had to have been constructed in any case in order to back it up.

Furthermore, the higher financing costs associated with utilities with nuclear exposure, to say nothing of the uncertainties caused by continuing to fight about Shoreham, makes financing under the Shoreham-reliant course far more expensive than the alternatives.

The fairest summary seems to be that if Shoreham ran well and oil prices rose rapidly over its life, there might come a time in the next century when it would be to the customer's net economic advantage.

On the other hand, if oil prices remain stable in real terms and Shoreham performs as erratically as many nuclear plants, it would never be an asset economically on Long Island.

Given that the near-term future without Shoreham is clearly—and I stress clearly by LILCO's own estimates—less expensive than the near-term future pursuing the Shoreham license, the wiser course is to put the Shoreham struggle behind us and get on with power supply planning on Long Island in a cooperative and constructive environment.

I should say a word, I think, in view of the concerns that Senator Johnston has expressed about the tax effects of the Shoreham dismantlement.

The tax writeoff associated with LILCO's not going forward with Shoreham at this time is very similar to the tax effect associated with operating Shoreham. The writeoffs that the IRS has indicated are permissible cannot be taken immediately by LILCO because it is not a taxpaying entity in any case. They would have to be spread out over some years.

Spread out over some years, they almost exactly parallel the tax effects of running the plant; that is, the accelerated depreciation benefits that would come to the company. So our studies do not take the tax writeoff into account in any substantial way as being a benefit to ratepayers or as being substantially different from those that come from running Shoreham.

The CHAIRMAN. But you get a double writeoff, though, with this plant as well as the new ones to be built in lieu of LILCO.

Mr. BRADFORD. As I indicated before, the new ones are not being built entirely in lieu of Shoreham. In part, they are being built to back it up. In part, Shoreham is being replaced by energy conservation. In part, as Mr. Flynn will outline, it is being replaced by Canadian purchases that do not qualify for treatment under U.S. tax law in any case.

I ought to also stress that the treatment being sought for Shoreham is no different than the treatment that has been afforded other utilities that have abandoned nuclear plants, including the Zimmer station in Ohio which, if memory serves me, was 99 percent complete at the time of its abandonment and whatever losses have been associated with Midland in Michigan, a similarly advanced station, and, of course, the Three Mile Island unit 2 for other reasons an abandoned plant and the many other plants that were abandoned at earlier stages of construction.

So with all due respect, Senator Johnston, what you described as sandlot justice seems to me needs to be laid against the major league justice concept of equal treatment for LILCO as compared to all other utilities that have for one reason or another had to abandon nuclear plants at various stages in recent years.

By way of conclusion, there are three areas of energy policy concern from a State regulatory standpoint that I would like to call to your attention. They all come under the general heading of Federal-State friction, and they are all retarding our efforts to assure adequate and reasonably priced power supplies over the next decade.

These are transmission, jurisdiction over wholesale sales of electricity, and confusion over the pricing of third-party power supply. Each is a legitimate subject for hearings in itself, and I will only touch on them briefly today.

As to transmission, there is a growing need for a Federally legislated dispute resolution mechanism to permit construction and also transactions between states that are unable to agree. My own preference would be for a framework in which FERC gave relevant states notice of an interstate transmission concern affecting them and gave them a reasonable time in which to resolve it, after which FERC would undertake the resolution even on a preemptive basis if that became necessary as an option of last resort.

The framework for regional compacts or for Federal-State joint boards are also possible approaches to this troublesome area.

As to the intrastate wholesale jurisdiction, let me just note the absurdity of the current framework. Even the smallest sales between third-party producers and utilities are Federally regulated, while the states determine completely the handling of the pricing of the power from generating stations of 1,000 megawatts or more as long as those plants are owned by utilities within their jurisdiction.

If Federal electric jurisdiction were reconfigured along the lines that already exist for telephone jurisdiction, that is interstate sales regulated Federally and intrastate sales, wholesale or not, regulated by the State commissions, much friction and inefficiency would be eliminated.

At present, change of interstate purchase such as that which exists in Maine when the Isle Au Haut Power Company with its 60 or so customers buys from the Stonington and Deer Isle Power Company with its several hundred customers, which in turn buys from the Bangor Hydro Electric Company, which is not exactly a giant either, we would no longer have to come to Washington for approval.

No one starting today would consider the wholesale-retail distinction to be a meaningful basis for establishing Federal/State jurisdiction, and its rearrangement would save a great deal of money while freeing badly-needed FERC resources for urgent issues that are presently languishing.

The third issue is essentially a subpart of the second one. It entails the uncertainty flowing from the FERC efforts to prevent the pricing of third-party power above avoided costs.

Now I share that goal, and I am doing all I can to implement it in New York; however, FERC's lunge into this area has created a good deal of uncertainty over the financability of, for example, contracts involving trash burning power plants priced above avoided costs in some states. Such a pricing policy may be a mistake and we have not adopted it in New York, but it is a legitimate State concern, and the past FERC policies permitting it ought to have been left undisturbed.

There is a tendency to ascribe the difficulties that exist between FERC and the State commission as to personality and the bureaucratic turf wars. Having served on one Federal and two State commissions, I would not deny that these factors play a role. However, the fact is that if both FERC and the State commissions were somehow instantly populated with angels, the existing statutory framework would have them at each other's throats within a week.

Legislation or FERC action addressing these three areas as well as pending bills giving direction and certainty on acid rain and carbon dioxide issues are the most important steps to assuring reliable power supply in our region and others that this committee could take up.

[The prepared statements of Mr. Bradford and Mr. Davis follow:]

TESTIMONY OF
PETER A. BRADFORD, CHAIRMAN
NEW YORK STATE PUBLIC SERVICE COMMISSION

BEFORE THE
UNITED STATES SENATE
COMMITTEE ON ENERGY AND NATURAL RESOURCES

APRIL 13, 1989

My name is Peter Bradford. I am Chairman of the New York State Public Service Commission, an independent regulatory agency with jurisdiction primarily over the state's investor owned utilities. I have previously been Chairman of the Maine Public Utilities Commission and a Commissioner on the Nuclear Regulatory Commission.

I will begin today with an overview of the state's electricity supply and demand picture, both short and long-term, to be followed by a closer look at the unique problems faced by Long Island. I will also address the specific concerns set forth in your letter of invitation: the role of Canadian electricity imports, plans for gas-fired cogeneration in the region and the closure of the Shoreham nuclear plant.

ELECTRICITY SUPPLY AND DEMAND
NEW YORK STATE -- 1989-2000

Overview

The overall condition of electricity supply and demand in New York State is good. The power pool and state government forecasts show statewide available capacity is expected to exceed the projected load plus the required reserve margin well into the 1990's. Long Island, which lacks the strong transmission ties that connect with other areas of the state, faces short-term supply difficulties with or without the Shoreham nuclear power station. The Long Island situation is discussed separately below.

Electricity supply and demand for New York State is based on the aggregation of the forecast demand and supply facilities of the seven major combined utilities and the New York Power Authority. The electric system in New York State is operated as a single entity with generation and dispatch handled centrally by the New York Power Pool.

From 1989-2000, forecast load and scheduled capacity, including independent power production penetration, Canadian purchases, sales to out-of-state utilities, and the results of utility demand-side management programs show a projected surplus over the 22 percent reserve margin without the construction of traditional utility central station generating plants in this timeframe. No deficiencies are anticipated.

Competitive Bidding Initiative

The Commission embraced the use of competitive bidding to choose among future electric generation supplies in an Order issued in June of 1988, which directed the state's seven electric utilities to file proposed guidelines for capacity bidding and draft requests for proposals. Both supply-side and demand-side bidding were prescribed with the requirement that links between the two be explained. The Order represented the culmination of a lengthy proceeding that evaluated the state's and the industry's history with both traditional utility constructed rate-base generation and electric purchase contracts signed in accordance with PURPA.

Proposed bidding processes and requests for proposals were received from all seven utilities in late 1988. At a Commission session held on March 22, 1989, the Commission gave its approval, with modifications, to the bidding proposal of Orange and Rockland Utilities, Inc., which is the first bidding program to complete the review process. The proposals of the other six utilities are expected to be approved during the spring and summer of this year.

Competitive bidding will be the predominant mechanism by which New York's utilities screen power supplies to meet their needs over the next ten years. It is likely to result in the construction of smaller power plants compared to the large central station power plants we have seen in the past.

The kinds of new generators that emerge from the bidding process will reflect factors other than simply cost minimization. The requests for proposal that will be approved shortly by the Commission will afford wide discretion to utility management to use their best judgment but will contain a strong emphasis on non-price factors such as environmental impact, fuel mix, and electric system operation characteristics. This is reinforced by policies that encourage the use of demand-side management as a substitute for the construction and operation of new electric generators.

The ability to consider non-price factors explicitly is a significant improvement offered by competitive bidding compared to our former PURPA policies which were, with some exceptions, dominated by price. The current set of bidding RFPs reflects our current concerns and those of New York's utilities. The bidding framework will allow us the flexibility to adjust the emphasis over time as new facts, problems, or opportunities emerge that cause a shift in policies. We are currently working, in concert with other state agencies, on a State Energy Plan that will help guide the bidding processes as they unfold over the next several years. As we gain experience with bidding, we expect to be able to use it to effectively secure the set of power suppliers (and conservation measures) that best fit the needs of utility ratepayers and the state as a whole.

Conservation and Demand Side Management Programs

Conservation will play a substantially greater role in the state's electricity needs in the 1990's. For the last five years New York's utilities have been increasing their resource commitment to demand side management and laying the groundwork for large scale programs which contribute significantly to meeting electricity needs. Resource commitments expanded from $18 million in 1985 to approximately $100 million budgeted for 1989. The utility programs resulting from these expenditures were expected to provide over 250 megawatts (MW) savings in 1989 alone. Recently, New York utilities have begun to consider DSM as a significant resource in plans to meet future needs. For example, LILCO will spend over $30 million in 1989 on an ambitious program aimed at reducing summer peak loads over 200 MW by 1992. Consolidated Edison and Orange and Rockland are also beginning large scale programs. Long range plans are being adopted for all New York utilities that can reduce demand by as much as 2,600 MW by the year 2000.

Utility support for DSM is undercut by the fact that these programs often reduce corporate earnings. Because incremental energy sales increase profits, traditional rate of return regulation produces lower earnings to utilities from reduced kwh sales. The loss of profits to utilities from reduced sales can be a serious impediment to the implementation of electric energy conservation. A major element of our strategy is to make the profit greatest on the approach that best serves the customers, just as a free and competitive market should.

The Public Service Commission has solicited such proposals from utilities. These will be considered shortly as utilities respond to the Commission's initiative. The role of energy conservation in meeting the state's future electricity service needs may then grow well beyond that envisioned by New York utilities in their first long range DSM plans.

Meanwhile, the PSC directed utilities recently to implement statewide in 1990 a common set of utility DSM programs. The immediate implementation of a broad range of DSM programs statewide will provide substantial benefits, including a reduction in the peak demand for electricity, lower consumer energy bills, and reduced environmental damage due to the decreased need for the generation of electricity.

The programs which will be implemented on a statewide basis include the following: programs aimed at commercial lighting and heating, ventilation, and air conditioning equipment; innovative rate design, load management, and building envelope efficiency programs. Programs for low income and not for profit utility customers will also be given high priority.

CANADIAN PURCHASES

New York State is not now overdependent upon Canadian purchases for firm capacity, and we do not expect that it will be so. I will leave further discussion of this issue to Mr. Flynn. Between now and 1994, New York's firm Canadian capacity purchase under contract is 800 MW. This is a so-called diversity purchase which is provided during the summer when Hydro Quebec has excess capacity. A second contract (recently signed) envisions 500 MW of additional firm capacity in 1995 and a second 500 MW in 1996.

As written, contracts for the resale of this capacity from the New York Power Authority to the utilities involved require Commission review and approval. Since the Commission will be called upon to decide whether or not to approve these contracts, I cannot comment further upon them. They have, however, been included in forecasts of available capacity in reaching conclusions on long-term supply adequacy.

I would emphasize that this total of 1800 MW of firm capacity is a very small portion of New York State's available supply. The total available capacity projected for New York in 1996 is over 35,000 MW; firm Canadian imports are not a particularly significant factor in New York's total supply picture.

There are, of course, currently extensive purchases of Canadian economy energy which is of great benefit to the State; this power comes from both Quebec and Ontario. Because this is economy energy, not firm, New York State does not depend on it for reliable service.

The major role of Canadian power in New York State over the next decade will essentially be as supplemental economy supply. This is available power that is cheaper than New York utilities' own generation, and which will bring significant cost savings to New York ratepayers. The firm capacity contracts cover relatively small amounts of capacity and are not a major factor affecting reliability.

GAS-FIRED COGENERATION

Many of the independent power production projects on the drawing boards in New York plan to use gas as a fuel. Assuming the availability of gas supplies at prices that will make electric generation by gas economic, growth in demand by both firm gas customers and the current and emerging electric generation market will place a strain on existing natural gas transmission systems.

To accommodate the increased demands in the Northeast, New York is experiencing a surge of applications to construct new pipelines in and across the state. The most notable of these projects are the Iroquois Gas Transmission System and the Tennessee Niagara Import Project. These are accompanied by a host of other projects, all of which would provide a combination of increased capacity for firm customers accompanied by a combination of firm and interruptible capacity for electric generators. As each state plans for increased gasfired electric generation, competition for capacity between states and electric generating regions will increase.

Gas cogeneration projects which in New York have reserved an entitlement in new pipeline capacity, or upgrading of capacity on an existing pipeline system, represents a total gas requirement of 262,331 Mcf/day, or on an annual basis, about 96 Bcf per year. This represents a combined generating capacity of approximately 1200 MW, or about 40% of the currently planned gas cogeneration in New York.

In addition to these projects which have arranged for the acquisition and delivery of their gas supply, there are substantial additional projects in various stages of planning which are also proposed to be gas-fired. While it is not expected that all of these projects will come to fruition, there are approximately 50 additional "active" projects whose combined gas consumption would be approximately 405,000 Mcf/day, or 148 Bcf per year, representing a generating capacity of 1850 MW. The wellhead supply contracts for these proposed projects have not been finalized. It is clear, however, that when supply arrangements are finalized the sponsors will have to acquire transportation capacity to deliver their supplies into New York State.

Therefore, of a currently planned 3050 MW of gas cogeneration in New York, 40% or 1200 MW worth, has reserved capacity on gas transmission systems and 60%, representing 1850 MW has not.

While it is expected that supplies will be available to serve these loads, the interstate pipeline delivery system serving downstate New York customers is capacity constrained. Additional capacity to serve these loads will involve the upgrading of existing pipelines, or construction of new pipeline systems. The three existing pipeline systems serving Long Island are operating at capacity. Each increment of additional firm supply has required a system expansion to deliver additional volumes. While a number of the pipeline expansions and new pipeline systems proposed in the FERC's "open season" proceeding do propose increased capacity to the New York City - Long Island region, the additional capacity, if certified by FERC is already fully subscribed.

I hasten to point out that our short and long-term electric supply forecasts do not rely on all, or even most, of this planned gas-fired cogeneration. We have been especially conservative in forecasting availability of generation from this source, recognizing the uncertainties associated with gas transmission availability and the economics of gas supply.

LONG ISLAND ELECTRIC SUPPLY PICTURE - 1989-2000

1989 Supply Assessment

Based on a summer 1989 forecast load of 3,878 MW and a 109 MW load reduction due to demand side management, LILCO's installed capacity requirement will be 4,447 MW, including an 18% reserve margin. LILCO will have installed capacity plus firm purchases of 4,480 MW resulting in a surplus of 33 MW. This is a barely sufficient margin, but not a comfortable one.

LILCO will be purchasing almost 600 MW of electricity from sources outside its service territory and is estimating a 109 MW reduction from DSM programs, more than twice the 1988 reductions. Further, the company has continued its extraordinary power plant maintenance program and the remaining work needed to prepare its generating units for this summer is expected to be complete before June 1, 1989.

Additional capacity not reflected in the above figures is expected from the 3 combustion turbines scheduled to come on line July 15, August 1 and August 22. When these 3 units are placed into service, the supply situation improves markedly. The 3 new turbines, each with a capacity of 80 MW, are being installed in the Town of Brookhaven at a site adjacent to Shoreham. The project is on schedule and LILCO expects no delays.

Unanticipated growth in demand, the loss of generating unit availability and transmission difficulties are the contingencies that could cause problems this summer.

A. Generating Unit Availability

During the peak period for the summer of 1988 LILCO's unplanned outages averaged 6.8%. LILCO's unplanned outage rate was significantly lower than similar rates for other New York State utilities (average of 11.7%). On high load days, the 13 days when load exceeded 3,500 MW, LILCO's unplanned generating outages averaged 3.7% at the peak hour. LILCO has maintained this low outage rate by pursuing an aggressive maintenance program. The program is continuing and is on schedule.

The Commission recently conducted an audit using staff and consultants to ensure that all necessary steps are being taken to maintain high generation availability. Continued high levels of availability are important to maintain system reliability.

B. Unanticipated Demand

Unanticipated increases in peak demand could cause stress to the LILCO system. As noted above, in recent years the electric load on Long Island has been growing rapidly beyond that forecast. Although recent load growth estimates have been on the order of 2%, load growth over the past 5 years has averaged over 3%.

Further, LILCO is relying on expected DSM reductions double those achieved in 1988. The DSM program has 3 major components which provide most of the 109 MW total: an energy cooperative program estimated to provide a 49 MW reduction; a power alert voluntary load reduction program, which should yield about 25 MW of peak savings, and other programs such as direct load controls and commercial audits, which should reduce peaks by 20 MW.

Supply Assessment: Decade

I have attached a table (App. 1) that forecasts a number of elements in LILCO's supply picture from 1990 through the year 2000.

There are four essential forecasts that shape the outlook for the decade ahead. We have forecast aggressive demand-side management ordered by the Commission to contain the growth in the LILCO load, increasing from a projected 109 MW peak load savings in 1989 to over 450 MW of savings in 2000. We expect a new transmission cable under Long Island Sound to be in service before the summer of 1991. We have forecast significant penetration by independent power producers in response to the Commission's bidding initiatives. In addition, we have used the premise that NYPA will build generation needed for supply on Long Island.

With the NYPA line in service early in 1991, power supply on Long Island will be much more reliable after the summer of 1990. As discussed above, early summer of 1989 is quite tight and presents some risks. The summer of 1990 has the potential to be difficult, but here, the additional 240 MW of combustion turbine peaking power will ease the situation considerably.

During the early to mid-1990's, the capacity situation on Long Island is improved by the operation of the Sound Cable and significant load reduction from demand-side management, projected to be over 200 MW in 1992, and over 450 MW by the year 2000. The capacity situation depends on surplus generation in the upstate area and from Canada to supply Long Island. Although the independent power production penetration has not been forecast beyond 1993, we anticipate significantly larger contributions by this source of energy through third party power production. This penetration is grounded in the assumption that a major gas transmission line will be constructed to provide natural gas on Long Island to the independent power producers.

SHOREHAM -- WHAT HAPPENED AND WHY

The deadlock and uncertainty concerning operation of the Shoreham Nuclear Power Plant has jeopardized, for at least the past five years, the fundamental goal of electric utility regulation -- assurance of a reliable and reasonably priced power supply for Long Island. That uncertainty, as the Public Service Commission observed in December 1987, has raised costs, sapped LILCO's financial resources, inhibited power supply planning, consumed the attention of top management, and poisoned the company's relationship with its customers and the government that they elect. The Commission found it in no one's interest for the controversy to continue.

Recognizing the necessity of breaking the deadlock over Shoreham the Commission encouraged the parties involved to work together to end the controversy over the plant's operation. The Commission's December 1987 decision did not take sides as to the merits of the company's effort to license Shoreham, but instead sent a message to the company and parties interested in the issues surrounding Shoreham that an end to the deadlock was essential for the Long Island community to enjoy a stable future with the assurance that its power supply would be safe, adequate and reasonably priced.

Many of the parties normally involved in rate proceedings of LILCO then proceeded to reach a settlement calling for the sale and decommissioning of the Shoreham plant. Parties to the settlement prepared detailed financial and operational models to determine what level of rates and what additional power supplies would be necessary to bring the financially troubled company back to financial health on the one hand and assure the public of a reliable power supply at a reasonable price on the other. The settlement anticipated that rate increases only slightly above the projected rate of inflation over the next ten years would be required to restore the company's financial condition. Three annual rate increases of 5% were set in the settlement and rates for the remaining seven years were targeted at about 4.75% per year. These increases are lower than those that would have been required by Shoreham operation during this time. The agreement also provided a multifaceted plan for meeting Long Island's need for additional power over the next decade without Shoreham. Elements of the power supply plan included:

1. A very aggressive conservation and demand-side management program where the company's expenditures for individual components of this program grew from the $4 million actually spent in 1988, to well over $30 million per year over the next decade.

2. Construction of 230 megawatts of new peaking combustion turbines.

3. Completion of a major additional transmission link from upstate to Long Island.

4. Life extensions on all LILCO units in the study period.

5. The possible construction by the New York Power Authority of three combined cycle plants of 300 megawatts each in 1997, 1999 and 2001.

6. The addition of 350 MW of new independent power production by 1997. This is a very conservative estimate. LILCO has 808 MW already under contract. The Commission's bidding program may well result in even greater amounts of independent power availability and may displace the need for the 300 MW combined cycle plants assumed in 5 above.

7. The modification of existing tie lines to facilitate additional import capability.

These additional programs and the rate increases required to support them were projected to be less costly than placing Shoreham into service and operating it over the same period of time. Although some studies indicated that operation of Shoreham might be a slightly less costly alternative over a projected 40 year life, other parties contended that this result was highly dependent upon intrinsically uncertain variables, such as 40 year estimates of capacity factors, fuel costs, inflation, financing costs, post-operational capital additions, operation and maintenance costs and NRC decisions affecting plant activities and life span.

Satisfied that the settlement presented the best available means to end the Shoreham controversy, the Commission approved it in November, 1988. The settlement, however, failed to become effective for want of legislative approval, which was one of the conditions for the agreement's effectiveness. Nevertheless, the settlement was in effect revived on February 28, 1989, when LILCO and the Governor of the State signed a new agreement that once again called for Shoreham's dismantling. But this time, the settlement contained no explicit rate provisions and did not require legislative approval. The new settlement will become effective if certain approvals are obtained by April 15 of this year and if shareholders approve it in due course.

The Public Service Commission, at its most recent deliberative session on April 5, approved the February 28 agreement calling for Shoreham's dismantling and established a multi-year rate plan, pretty much along the lines of the one that was part of the original settlement. As of this time, further approvals required to make the agreement effective include the company's Board of Directors, the company's shareholders and the Long

Island Power Authority. Assuming those approvals are obtained within the prescribed timeframe, LILCO will transfer Shoreham assets to the Long Island Power Authority, which in turn will contract for its decommissioning with the New York Power Authority. The transfer of Shoreham will be made pursuant to an asset transfer agreement that has been negotiated between the company and the Long Island Power Authority.

LILCO has agreed that it will not operate Shoreham pursuant to any authorization it receives from the Nuclear Regulatory Commission, provided that all approvals except shareholders approval are received by April 15. LILCO has agreed to use its best efforts to conduct its shareholders meeting by June 15, 1989.

The Commission has established a task force that will closely monitor the company's rate and power supply situation over the ten year term of the Commission's rate moderation plan.

Paradoxical as it seems, Shoreham would not have been a great asset to the Long Island power supply situation in the near future. In part, this is due to Long Island's unique circumstances. Because of the transmission constraints, because nuclear units are not reliable in their early years and because Shoreham would be much the largest unit on the LILCO system, much of the generating capacity that is now being built to replace Shoreham would have had to be constructed in any case in order to back it up. Furthermore, the higher financing costs associated with utilities with nuclear exposure, to say nothing of the uncertainties caused by continuing to fight about Shoreham, makes the Shoreham-reliant course more expensive than the alternatives.

The fairest summary seems to be that if Shoreham ran well and if oil prices rose rapidly there might come a time when in the next century it would be to the customers net economic advantage. On the other hand, if oil prices remain stable in real terms and Shoreham performs as erratically as many nuclear plants, it would never be an asset economically on Long Island. Given that the near term future without Shoreham is clearly - by LILCO's own estimates - less expensive than the near term future pursuing the Shoreham license, the wiser course is clearly to put the Shoreham struggle behind us and get on with power supply planning on Long Island in a cooperative and constructive environment.

By way of conclusion, there are three areas of concern from a state regulatory standpoint that I will call to your attention.

They all come under the general heading of Federal-State friction, and they are all retarding our efforts to assure adequate and reasonably priced power supplies over the next decade. They are transmission, jurisdiction over wholesale sales of electricity and confusion over the pricing of third-party power supply. Each is a legitimate subject for hearings in itself, but I will only touch on them briefly today.

As to transmission, there is a growing need a federally legislated dispute resolution mechanism. My own preference would be for a framework in which FERC gave relevant states notice of an interstate transmission concern effecting them and gave them a reasonable time in which to resolve it, after which FERC would undertake the resolution on a preemptive basis if necessary. A framework for regional compacts or for federal-state joint boards are also possible approaches to this troublesome area.

As to the intrastate wholesale jurisdiction, let me just note the absurdity of the current framework. Even the smallest sales between the third-party producers and utilities are federally regulated, while the states determine completely the handling of the pricing of power from generating stations of 1,000 MW and more as long as those plants are owned by the utilities. If federal electric jurisdiction were reconfigured along the lines that already exist for telephone jurisdiction - that is interstate sales regulated federally and intrastate sales (wholesale or not) regulated by the state commissions, much friction and inefficiency would be eliminated. Chains of intrastate purchase such as that which exist in Maine when the Isle Au Haut Power Company buys from the Stonington and Deer Isle Power Company which in turn buys from the Banghor Hydro Electric Company - not exactly a giant in itself - would no longer have to come to Washington for approval. No one starting today would consider the wholesale/ retail distinction to be a meaningful basis for establishing the federal-state jurisdiction, and its rearrangement would save a great deal of money while freeing badly needed FERC resources for urgent issues that are presently languishing.

The third issue is essentially a sub-part of the second one. It entails the uncertainty flowing from the FERC efforts to prevent the pricing of third-party power above avoided costs. I share that goal and am doing all that I can to implement it in New York. However, FERC's lunge into this area has created a good deal of uncertainty over the financeability of - for example - contracts involving trash burning power plants priced above avoided costs. Such a pricing policy may be a mistake, but it is a legitimate state concern and the past FERC policies permitting it ought to be left undisturbed.

There is a tendency to ascribe the difficulties that exist between FERC and the state commissions to personality and to bureaucratic turf wars. Having served on one federal and two state commissions, I wouldn't deny that these factors play a role. However, the fact is that if both FERC and the state commissions were somehow instantly populated with angels, the existing statutory framework would have them at each other's throats within a week. This is a statutory framework which has, as Lawrence Durrell wrote of Alexandria, "used us as its flora - precipitated in us conflicts which were hers - and which we mistook for our own."

App. 1

LILCO
Summer Peak Load and Capacity
1989 - 2000

Year	Forecast Load plus Reserve	Demand Side Load Reduction	LILCO Generation	Imports and Purchases	Niagara Plus HQ	Total Generation Resources	- Defcy. + Srpls.
1989	4556	109	3842	638	0	4480	33
1990	4555	144	4082	506	0	4588	177
1991	4663	188	4082	542	0	4624	149
1992	4712	228	4082	549	0	4631	147
1993	4800	233	4082	603	0	4685	118
1994	4879	240	4082	595	0	4677	38
1995	4996	275	4082	587	109	4778	57
1996	5056	311	4082	583	218	4883	138
1997	5179	347	4082	580	299	4961	129
1998	5239	383	4382	576	299	5257	401
1999	5336	418	4382	572	299	5253	335
2000	5423	454	4382	568	299	5249	280

Notes:

1. A 300 mw capacity increase is shown in 1998. This plant may be built by NYPA.
2. NYPA's cross-sound cable is to be operational in 1991 and the additional capacity should allow LILCO to purchase upstate, as available.

REMARKS

OF

WILLIAM E. DAVIS
EXECUTIVE DEPUTY COMMISSIONER

NEW YORK STATE ENERGY OFFICE

BEFORE

COMMITTEE ON ENERGY AND NATURAL RESOURCES

UNITED STATES SENATE

APRIL 13, 1989

New York State's current electricity supply and demand situation may be summarized as follows:

- Last summer's statewide peak demand was 25,720 megawatts (MW);
- Total statewide supply capability last summer was 31,940 MW, 6220 MW or approximately 24 percent above the peak demand;
- Since the New York Power Pool planning criterion for reserve margin is 22 percent, New York had approximately 2 percent, or 560 MW of excess capacity last summer.
- New York's current mix of installed capacity is:

Fuel	Percent
Oil	51
Hydro	16
Coal	15
Nuclear	15
Natural Gas	1
Other	2

- The mix of fuels actually consumed to generate electricity is as follows:

Fuel	Percent
Oil	23
Hydro	21
Coal	19
Nuclear	17
Natural Gas	12
Net Purchases	8

Many factors, each to some extent uncertain, will affect the balance of electricity supply and demand in New York in the future. The key factors include:

- demand growth;
- retirement of existing capacity;
- the success of efficiency improvement and demand-side management activities;
- completion of several investor-owned utility and New York Power Authority projects;

- finalization of pending contracts associated with imports of hydropower from Hydro-Quebec;
- completion of a broad array of independent power projects;
- the success of utility bidding programs; and
- completion of projects to increase natural gas availability.

At the direction of Governor Cuomo, we currently have underway in New York a comprehensive energy planning process. This is a joint effort of the State Energy Office, Department of Public Service and Department of Environmental Conservation with input and assistance from the Power Authority, other state agencies, energy suppliers and the public, which will produce a draft Plan by May 1st and a final Plan by July 31st.

The objective of this process is to produce an energy plan which balances the State's energy, environmental and economic development priorities in a manner which best serves the public interest. Executive branch agencies in New York have been directed by Executive Order to act in conformance with the Plan; independent regulatory agencies and authorities have been asked to give the Plan due defference in their deliberations.

The Plan will address all fuels and all end uses. Concerning electricity, it will address all of the key factors mentioned earlier which will affect electricity supply and demand in the future. In the draft Plan, sensitivity analyses will be included addressing the impacts on demand, supply, price and environmental impacts resulting from changes in key variables. The draft Plan will include a range of forecasts, an assessment of the adequacy of available supplies, and analysis of needs, an environmental impact statement, as well as recommended strategies and actions to improve New York's electricity posture. Analyses of three scenarios will be presented addressing a Base Case, a Lower-Emissions Case and a Lower-Cost Case.

Between May 1st and July 31st the draft Plan will be subjected to public review, including public hearings, and necessary revisions will be made.

The Plan will address the need for new electric generating capacity, provide guidance for the competitive bidding processes and inform environmental review proceedings for specific proposed facilities.

We will provide the Committee with copies of the draft and final Plans when they are available.

While the draft Plan is still under development, and subject to change, I would be glad to answer any questions I can.

Thank you.

The CHAIRMAN. Thank you very much, Mr. Bradford.

Next we will hear from Richard M. Flynn, Chairman of the New York Power Authority.

STATEMENT OF RICHARD M. FLYNN, CHAIRMAN, NEW YORK POWER AUTHORITY

Mr. FLYNN. Senator, thank you.

I will follow what I believe is your usual procedure. I will edit my spoken remarks and submit the full——

The CHAIRMAN. Yes, your full statement will be put into the record.

Mr. FLYNN. Thank you very much.

I am here this morning as Chairman of the New York State Power Authority, and I am here in response to your letter addressing those areas mentioned in your April 7 letter.

First of all, I would like to place for you the Power Authority and its role in energy supply in New York State. We are the largest non-Federal public power agency in the United States, and as far as New York is concerned we provide about one-third of its electricity. Our mandate is both statutory and market driven because basically we are a bulk wholesaler. It is to provide the cheapest possible power to our customers in the State of New York, and we also have some customers in neighboring states.

As far as generating capacity, we own two major hydro electric generating projects, two nuclear power plants, a pump storage hydro electric project, a gas- and oil-fired plant, and five small hydro electric projects. I think interestingly enough, joining your position this morning on being opposed to the use of imported oil, we have followed that strategy since our inception, and our generation now is over 90 percent does not involve imported oil.

These facilities along with energy purchased from Canada provided approximately 99 billion kilowatt hours of electric energy for our customers in 1988, about 30 percent of the state's consumption.

In addition, we own an extensive high voltage transmission network including approximately 1,400 circuit miles of transmission lines with major connections to Hydro Quebec and Ontario Hydro plus an interconnection to Vermont.

By virtue of the two hydro electric generating facilities, we for a long time had Canadian relationships. I became a trustee of the Power Authority in the 1970s. About that time, the relationships with our Canadian partners began to broaden.

In 1974, there was an interesting situation. We concluded a contract with Hydro Quebec under which it agreed to make available 800 megawatts of firm diversity power. This is not surplus energy but firm diversity power and associated energy to us during the warm weather months of April through October. Now the economic circumstances surrounding that transaction would be opposing peaks so that a firm purchase during this period when their peak was down was generally economic for our customers.

So in connection with this contract, we constructed a high capacity transmission connection between the Quebec border and the City of New York completed in 1978.

More recently, in recognition of the fact that downstate New York including any customers that we serve directly would need new capacity in the next decade, we negotiated a new contract with Hydro Quebec, and this was for the provision of firm power. It was 1,000 megawatts, which is our first year round in contrast to the eight months firm capacity purchase contract.

The contract takes effect in 1995. The 20-year contract will replace current surplus energy purchases with firm capacity and energy which can be counted on for capacity needs. The choice was primarily based on one simple fact, that Quebec is the most economic source of energy available to us. When compared with the best available study of contrasting costs that were available at the time of negotiation, our Public Service Commission's long run avoided cost proceeding.

Since 1978, our State industrial, commercial and residential customers have saved more than $600 million as a result of the Hydro Quebec power and energy alone. Additional savings have been realized from purchases of power from Ontario Hydro.

At the same time, it should be recognized that Canadian power represents only a small fraction of the state's energy needs. In 1988, only 8 percent of our state's electric energy came from Canada, and most of this was nonfirm surplus energy which reduced costs but was not required to meet capacity needs within the state.

We are also very conscious and encourage fuel diversity and do not wish to become overly dependent on Canadian sources. When this new 1,000 megawatt contract comes into effect, we will be purchasing only 1,800 megawatts of our annual capacity from Canadian sources, and that amounts to only 5 percent of our state's projected capacity resources in 1996. By way of comparison, it is anticipated that in that same year our capacity will include about 4,800 megawatts of coal-fired generating capacity.

I would like once again to assure you that Canadian power has no lock on our purchase of power. We have in the past and we will in the future continue to look for other competing sources of power such as oil, coal, natural gas, nuclear and power by wire. Our decisions are centrally guided by economics, potential environmental impacts and good solid diversity for the state.

A track record of more than 30 years of energy supply in the state indicates that we are dedicated to seeking out and developing the cheapest sources of electricity available for our customers.

We are moving toward natural gas for electricity generation. In the near term we feel that some of these purchases make economic and environmental sense.

Our only fossil fuel power plant, the Poletti Project in the city borough of Queens, burns natural gas when it is available and cheaper than oil. We converted that to secure the superior economic reaction in 1980.

In addition, to assist in the Long Island situation, we have agreed to be ready on a standby basis if requested by the local utility to build new baseload generating capacity. The present expectation is that any such capacity would be principally gas fired, and to that I have supervised negotiations which could provide us with a small ownership interest in the Iroquois project.

We are also vigorously exploring the availability of natural gas from sources in the southwest and western New York as well as in Canada.

Should the Long Island Lighting Company call on us to build and operate this new capacity, we will be ready to do so. With these plants and with the cable previously mentioned in testimony this morning, we will be commencing construction this year to bring 600 megawatts of additional upstate and Canadian power to Long Island. We expect to be able to assist Long Island in meeting its capacity needs through the end of the century.

Key words in our energy strategy are economy and flexibility. For example, if we build gas-fired plants on Long Island, we are going to be exploring very carefully having the flexibility to install coal gasification equipment in these plants if it becomes economically prudent and beneficial to the ratepayers to do so. We view transmission in which we are key players—and this is really from every energy source that is active in the state—as essential to maximizing flexibility. For example, we discussed in a general sense, not in relation to the Long Island situation, with energy officials from the midwest and New England the concept of coal by wire which would work only if siting and regulatory mechanisms are in place to assure appropriate and cost effective transmission reinforcements.

As you know, FERC and this legislative body are expected to be considering this issue in order to come up with needed reforms to assure maximum economic effort. I would just like to make that general observation. It is very important to the state and for us to provide least cost energy to the state to have economic availability to all sources of energy throughout the United States. As things stand now, existing transmission policies greatly frustrate that effort.

Just commenting again, have built a number of transmission lines. When you attempt to build transmission lines running from one state to another state, it is very difficult to get the various State regulatory commissions to work in unison on this problem. So the problem is that the real economic cost of the power is greatly driven up.

In addition to that, if you are moving from power pool to power pool, the custom of the power pools is such that it is very difficult to get the low cost energy or power that you are buying in the same form out of the power pool. The general practice is that they sell from the power pool the highest source of energy that they have.

FERC is considering the question of transmission. We urge you gentlemen and we know you are to become intimately involved in that, because if you are interested and I know you are, and we are interested also in obtaining from all around the United States the cheapest form of U.S. power available, we must work on transmission so that this power can be brought into the state to be utilized by generators.

Finally, I would like to touch briefly on the Shoreham situation. First, at the Power Authority we are very proud of our outstanding record of safe, reliable and productive operations at our two nuclear plants, FitzPatrick in Oswego, New York, and Indian Point 3 in

Buchanan, New York. These plants have operated safely for over a decade, and they are good neighbors in the communities in which they are located.

The closing of Shoreham is a public policy decision that has essentially been made by the governor and LILCO and, I might add, with the support of the people and the elected officials of Long Island. That decision, these negotiations, was not the Power Authority's decision.

Our charter, being a legislative body created and shaped by the legislature of New York State, does not contemplate us making this kind of public policy decision. Our involvement here is that we took on two new responsibilities under this decision as expressed in the overall February settlement agreement.

First, the availability to contract and supervise the decommissioning of the Shoreham nuclear plant for LIPA. As I have mentioned, we will also be ready on call to provide new sources of electricity. So that the central question as far as our trustees were concerned in considering additional responsibilities under the settlement agreement was whether or not we could discharge the specific responsibilities and still adequately perform our statewide tasks. At the meeting that took place yesterday, our trustees decided that this was the case.

[The prepared statement of Mr. Flynn follows:]

1633 Broadway
New York, New York 10019
212 468.6000

New York Power Authority

United States Senate
Committee on Energy and Natural Resources

Richard M. Flynn
Chairman
April 13, 1989
Washington, D.C.

TESTIMONY BEFORE THE SENATE COMMITTEE ON ENERGY

Mr. Chairman and Members of the Committee:

My name is Richard Flynn, and I am Chairman of the New York Power Authority. I am here in response to the Committee's April 7th letter and I'll be addressing those areas mentioned in the Committee's letter in which we play a role.

First, I'd like to briefly describe for you the New York Power Authority and its role in energy supply in New York State. We are the largest non-federal public power agency in the United States. We provide about one-third of New York State's electricity.

Our mandate, both statutory and market driven, is to provide the cheapest possible power to our customers in the State of New York and in neighboring states. Those customers include basic industries, governmental agencies such as the City of New York and its subway system, municipal and cooperative electric systems and investor-owned electric utilities throughout the State which purchase Power Authority electricity for the benefit of their customers.

The Power Authority owns two major hydroelectric generating projects, two nuclear power plants, a pumped-storage hydroelectric project, a gas-and-oil fired plant and five small hydroelectric projects. These facilities, along with energy purchased from Canada, provided approximately 39 billion kwh of electric energy for our customers in 1988, about 30% of the state's consumption. In addition, the Power Authority owns an extensive high-voltage transmission network, including approximately 1400 circuit miles of transmission lines with major interconnections to Hydro Quebec and Ontario Hydro plus an interconnection to Vermont.

CANADIAN POWER

By virtue of the location of our two major hydroelectric generating projects, the Power Authority has a long-standing relationship with Canadian utilities. At Niagara Falls, we share the waters of the Niagara River pursuant to international treaty; at our St. Lawrence-FDR Project, in Massena, New York, the international border passes through the center of the power dam. Since the early 1960's, the Power Authority and Ontario Hydro have coordinated the operation of the two systems for interchange of power at the Niagara and St. Lawrence-FDR interconnections, as well as for the use of generating equipment of either system by the other in order to make optimum use of all available water at all times.

I became a trustee of the Power Authority in the 1970's around the time that relationships with our Canadian partners began to broaden. In 1974, we concluded a contract with Hydro-Quebec under which it agreed to make available 800 megawatts of firm "diversity" power and associated energy to the Power Authority during the warm weather months of April through October. It is during these months that New York's system needs additional power due to higher peak loads, and surplus capacity is available to the Canadians since their greatest demand is in the winter. In connection with this contract, we constructed a high capacity transmission interconnection between the Quebec border and Massena, New York which was completed in 1978.

We have purchased surplus energy from Ontario Hydro since the mid-1960's, and in 1978 began buying substantial quantities of non-firm energy from Hydro-Quebec. These purchases provide us with electricity on an "as available" basis which we obtain only when it is priced lower than energy available from existing sources in New York State.

Finally, in recognition of the fact that downstate New York, including customers we serve directly, would need new capacity in the next decade, I negotiated a new contract with Hydro-Quebec for the provision of firm power -- 1,000 megawatts -- which is our first year-round firm capacity purchase contract. This contract takes effect in 1995 and will replace current surplus energy purchases with firm capacity and energy which can be counted upon for capacity needs. This choice was primarily based on one simple fact: Quebec is the most economic source of energy available to us, when compared with costs projected for New York in the Public Service Commission's long run avoided cost proceeding. I might add that it is a source which has proven to us over the years to be a reliable one, as well.

In 1988, we purchased 4.5 billion kilowatt hours of electricity from Canadian utilities pursuant to a series of contractual agreements.

Since 1978, New York State industrial, commercial and residential consumers have saved more than $600 million as a result of Power Authority purchases of Hydro-Quebec power and energy alone. Additional savings have been realized from purchases of power from Ontario Hydro. At the same time, it should be recognized that Canadian power represents only a small fraction of New York's electrical energy needs. In 1988, only 8% percent of our State's electric energy came from Canada; most of this was non-firm, surplus energy which reduced our costs but was not required to meet capacity needs within the State.

The large-scale hydropower currently being developed in Canada enjoys a significant cost advantage over other large-scale generating options. Further, the use of this renewable resource helps conserve the world's non-renewable energy reserves. Purchases of Canadian hydropower for the Northeast principally displace imported oil and natural gas-fired generation. In New York State about half of the generating capacity is oil-dependent. In 1988, even with a helpful assist from Canadian energy, the state had to rely on oil and natural gas for 40% of its electricity production.

Let me add that we also encourage fuel diversity and do not wish to become overly dependent on Canadian energy sources. When our new 1000 megawatt firm power contract goes into effect, New York will be purchasing only 1,800 megawatts of its annual capacity needs from Canadian sources, which amounts to only 5 percent of the State's projected capacity resources in 1996. By way of comparison, it's anticipated that in that same year New York's capacity mix will include about 4800 megawatts of coal-fired generating capacity.

PLANS FOR GAS-FIRED ELECTRICITY GENERATION

Let me assure you that Canadian power has no lock on the New York Power Authority. We have in the past, and will in the future continue to look for other competing sources of power - oil, coal, natural gas, nuclear and power by wire. Our decisions are guided by economics, potential environmental impacts and good solid diversity. Our track record of more than thirty years of energy supply in New York State indicates that we are dedicated to seeking out and developing the cheapest sources of electricity available for our customers. Currently, based on our analysis and experience, we believe that the use of natural gas for electricity generation today and in the near term makes economic and environmental sense.

The Power Authority's only fossil-fueled power plant, the Charles Poletti Project in the New York City borough of Queens, burns natural gas when it is available and cheaper than oil.

Originally designed to burn oil as a primary fuel, the plant was modified by the Power Authority to provide dual-fuel capability in 1980, and since then the plant has used more than 112 billion cubic feet of natural gas. This modification has enabled the plant to avoid burning approximately 18 million barrels of oil, and in the process has saved New York consumers more than $47 million.

In an effort to assist in meeting power supply needs on Long Island, the Power Authority has agreed to be ready, if asked by the local utility, to build new baseload generating capacity on Long Island. Our present expectation is that any such capacity will be principally gas-fired, and to that end I have supervised negotiations that could provide the Power Authority with a small ownership interest in the Iroquois Project. We are also vigorously exploring the availability of natural gas from sources in the Southwestern and Western U.S. as well as Canada.

Should the Long Island Lighting Company call us on to build and operate new capacity on Long Island, we'll be ready to do so. With these plants and a cable on which we'll be commencing construction this year to bring 600 megawatts of additional upstate and Canadian power to Long Island, we expect to be able to assist Long Island in meeting its capacity needs through the end of the century.

The key words in our energy strategy for the future are economy and flexibility. For example, if we build gas fired plants on Long Island, we're exploring very carefully having the flexibility to install coal gasification equipment in those plants if it becomes economic and prudent to do so. We view transmission, in which we're key players, as essential to maximizing flexibility - for example, we've discussed with energy officials from the Midwest and New England the concept of coal by wire, which will work only if siting and regulatory mechanisms are in place to insure appropriate and cost effective transmission reinforcements. As you know, the Federal Energy

Regulatory Commission (FERC) and Congress are expected to be considering this issue in order to come up with the needed reforms to assure the maximum economic benefit. As builders and operators of a large transmission system, we look forward to participating in that process and I'd be happy to discuss this further with you this morning. We are also monitoring the competitive bidding process which is currently being implemented in New York State to insure that a proper cost burden for transmission is included in the evaluation of near term supply and demand side bids.

Finally, let me touch briefly for you on our role with respect to the Shoreham nuclear power plant.

First, you should know that we at NYPA are very proud of the outstanding record of safe, reliable and productive operations at our two nuclear plants, James A. FitzPatrick in Oswego, New York and Indian Point 3 in Buchanan, New York. These plants have been operated safely for over a decade and are good neighbors in the communities in which they're located.

The closing of Shoreham is a public policy decision that has essentially been made by the governor and LILCO with, I might add, the support of the people and elected officials of Long Island. That decision was not the Power Authority's. Our charter does not contemplate our making this kind of a public policy decision.

The Power Authority takes on two new responsibilities under this decision as expressed in the settlement agreement. We will contract to supervise the decommissioning of the Shoreham nuclear plant for the Long Island Power Authority. And, as I mentioned, we will be available to provide new sources of electricity. The central question facing the trustees in considering the additional responsibilities under the settlement agreement was whether or not the Power Authority could discharge these responsibilities and still adequately perform our state-wide tasks. At a meeting that took place yesterday, our Trustees decided this was the case.

The **CHAIRMAN**. Thank you very much, Mr. Flynn.

Mr. Bradford, you talked about the fact that the decommissioning would be a good deal for the ratepayers.

Do you have a detailed analysis of that?

Mr. **BRADFORD**. Yes, we do. Would you like to have it presented?

The **CHAIRMAN**. We would like it for the record,[1] yes.

Now in that respect, I understand that you would rate base $3.656 billion, which is the difference between the full cost of the plant and that which is not allowed by the commission; is that correct?

Mr. **BRADFORD**. That is not precisely correct. That is, the amount going into rate base reflects other items as well. The amount that would go into rate base if the plant were to operate would be somewhat larger. There are other disallowances that were negotiated between our staff and the company and originally the other parties as well, including disallowances for an ill-conceived venture in uranium mining, some associated with the Jamesport nuclear plant, and two or three other things anyway.

The **CHAIRMAN**. The figure I have is $1.4 billion disallowed by the Public Service Commission.

Mr. **BRADFORD**. That is correct as far as the amount that was disallowed by the commission for imprudence in the construction of Shoreham itself.

If you want precision, perhaps our General Counsel, Bill Cowan, could join me at the table, because he——

The **CHAIRMAN**. I am just interested in the amount, not how you got there. The amount I have is $3.656 billion which was rate based. Can you give me that amount?

Mr. **BRADFORD**. The amount is roughly right; but again, the amount going into rate base is not reflective just of Shoreham minus the prudence disallowance. It is Shoreham minus the prudence disallowance minus the Bokum uranium project minus Jamesport and minus some other things as well.

The **CHAIRMAN**. Okay. Now, the amount going into rate base is about the same amount as if Shoreham were to be operated, is it not?

Mr. **BRADFORD**. Well, again, it is at least a couple of hundred million dollars less.

The **CHAIRMAN**. A couple of hundred million as a percentage of 3.65 billion is what percent? Over 90 percent of the amount will go into rate base without operating Shoreham as if you were operating Shoreham; is that not correct?

Mr. **BRADFORD**. The number is correct; but again, it was not calculated with reference to Shoreham at all. It was calculated with reference to returning LILCO to financial health over a reasonable period of time.

You can test it against what the prudent cost of Shoreham would have been in order to get some rough estimate of its justice, but it is not calculated that way.

The **CHAIRMAN**. What is it calculated on?

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[1] Additional information included in Appendix II.

Mr. **Bradford**. Again, the schedule involved in returning LILCO over a decade to reasonable financial health for an electric utility of its characteristics.

The **Chairman**. I am not an accountant, but the thrust of the question is very simple; that is, the ratepayers are going to have to pay as much for operating Shoreham as for closing Shoreham. Is that about right?

Mr. **Bradford**. They are going to have to pay somewhat less over the next, I would say, 10 to 12 years under a situation in which Shoreham does not operate than in one under which it operates.

Beyond that time, the company has indicated that in their view the Shoreham operation would be beneficial to ratepayers sometime early in the year after 2000. Arithmetic will tell you that if you have been running a deficit for that many years, it is going to take you some more years to achieve the net benefits. So I would say roughly 17 or 18 years after its operation by the company's estimates would be the first year in which there would be any net benefit, assuming Shoreham operates reasonably well and assuming that oil prices rise at——

The **Chairman**. I think I heard the answer to my question was yes——

Mr. **Bradford** [continuing]. No. Actually, the answer was no.

The **Chairman** [continuing]. That you would have to pay as much for operating as not operating. That is a very simple question.

Mr. **Bradford**. In the early years it is cheaper not to operate Shoreham. Between now and the year 2000 it is cheaper not to operate Shoreham from the ratepayer's standpoint.

The **Chairman**. Now that, I must say, does not add up to me. Can you add that up for me?

I mean, you have to pay for your sunk cost, and all you have to pay to operate is your cost of fuel and your people to run it and insurance and a few other costs. Why would it be cheaper to buy?

Secretary Watkins in his article in "Newsday" this morning stated that it cost two to five times as much to buy oil-generated power. He says, and I quote, "Nor is oil-fired generation the answer. It would cost from two to five times more per kilowatt hour than Shoreham-produced electricity."

Now if you have to pay for Shoreham anyway and it costs you two to five times as much, according to the Secretary of Energy, would you tell me how you save money on that?

Mr. **Bradford**. As I indicated in my testimony, first of all, LILCO's costs of capital are higher in two respects if Shoreham is running. It is higher in two respects. It is higher because in order to get Shoreham into operation you have to continue to fight about it for a while.

The **Chairman**. You have to what?

Mr. **Bradford**. Continue to fight about it for a while longer.

From the point of view of LILCO, which has to raise large amounts of money right away, the——

The **Chairman**. Tell me what that means, you have to continue to fight about it.

Mr. **Bradford**. The NRC may or may not issue a license next week——

The **Chairman**. Obviously assuming they issue the license.

Mr. **Bradford**. I would not want to place a bet with you one way or the other on that, at least one way.

There is still extensive litigation following from that.

The **Chairman**. If I may interrupt you at that point, speaking of litigation, part of your plan is to transfer this license to this newly-created corporation, Long Island Power Authority. Has NRC ever transferred a license like that to a shell corporation?

Mr. **Bradford**. I do not know the answer to that.

The **Chairman**. I think the answer is no.

Second, does Long Island Power Authority have the expertise to run a nuclear power plant or to decommission one?

Mr. **Bradford**. The Long Island Power Authority has no intention of either running or decommissioning a nuclear plant.

The **Chairman**. Who will decommission?

Mr. **Bradford**. The New York Power Authority would, and I defer to Dick Flynn for the detailed answer; but I do not doubt that they have the expertise especially because——

The **Chairman**. Have they agreed to do so?

Mr. **Flynn**. Yes, we have agreed to do so.

Under the agreement, Senator, title will pass to LIPA, and the New York State Power Authority, which has had considerable nuclear experience and I think interestingly enough now operates the sister nuclear plant to Shoreham, FitzPatrick, which incidentally was started in the late 1970s after Shoreham and completed at a cost of——

The **Chairman**. Do you have a high degree of confidence that that transfer and that decommission arrangement will be approved if that litigation were delayed?

Mr. **Flynn**. Senator, we do, in that we are getting absolutely competent nuclear expertise to provide over the decommissioning procedure.

The arrangement calls for the decommissioning plan and the operation of the plant to be guided by the New York State Power Authority, and we are experienced in that area of operations.

The **Chairman**. Speaking further of litigation, you say in your testimony that one of the four ways you get power into Long Island is with a transmission cable. Is that not also under extensive litigation which is likely to delay the electricity coming into Long Island?

Mr. **Flynn**. No, sir. We are constructing. The power comes from Canada over two cables. The first link which is the largest transmission line in the state has been completed on budget and on schedule. That is Marcy South.

The second transmission line is a line under the Sound. That is presently proceeding on schedule. We are going to begin building that in the near future. We will be there with that line to serve the Island's power needs in the summer of 1991.

The **Chairman**. You anticipate no litigation with respect to that?

Mr. **Flynn**. No significant litigation, sir, no.

The **Chairman**. Say again?

Mr. **Flynn**. No significant litigation, no, sir.

The **Chairman**. What is significant litigation?

Mr. **Flynn**. I want to be crystal clear on my response to that question. I know of no litigation that in my judgment would interrupt our proposed schedule for construction and completion of that line.

The **Chairman**. Is there litigation that would interrupt the operation of Shoreham if a full power license were granted?

Mr. **Bradford**. Yes; potentially, at least.

Sir, as I am sure you know, the NRC took the extraordinary step of evicting the governor and the relevant county from the proceeding. I have no doubt that that will be appealed, and since the NRC has never done such a thing before I would not want to predict what the impact of that might be on a reviewing court's judgment about whether to issue a stay.

Senator, one other point as to decommissioning, it is not for this plant the complex issue that it is for a plant that has operated for 30 years. Shoreham has operated the equivalent, I think, of one full power week. As a result, the issues of extensive radiation exposure and irradiation of the materials in the plant that would apply to other large units or even other small units that had operated for many years just are not present here. It is not nearly as challenging as decommissioning——

The **Chairman**. Of course, the cost of decommissioning is put into your figures on——

Mr. **Bradford**. The costs of decommissioning Shoreham are, indeed.

In fact, one of the advantages obviously to not going forward with it is that the decommissioning cost is so much lower for a plant in this stage than one at the end of a full life. The more significant factors, if you would like to come back to that list, are the lower capital costs, the different amount that goes into rate base. It is a lower amount.

The **Chairman**. Excuse me. Let me interrupt and ask a question before I forget it.

Mr. Flynn makes a strong case for preemption on the question of building power lines. Do you endorse that?

Mr. **Bradford**. I have always taken a very skeptical attitude toward preemption, but I would endorse it in the context of transmission line disputes as a last resort.

The **Chairman**. Are we at the last resort?

Mr. **Bradford**. Let me try to give a little more flesh to those bones.

If FERC could show following a responsible proceeding that a genuine dispute existed that could only be resolved by preemption—that is, that other reasonable approaches have been tried and failed and that as a result needed power flows were being impeded interstate, then I would endorse it.

The **Chairman**. Mr. Flynn, you are of course familiar with NEPOOL, New England Power Pool. I understand they have a procedure called Operating Procedure 4. Are you familiar with that?

Mr. **Flynn**. I am not, sir. We operate in the New York area, and we are a member of the New York Power Pool.

The **Chairman**. Are you familiar with that? Let me explain what I know about it, and then——

Mr. **Bradford**. Tell me its title in more detail than Operating Procedure 4.

The CHAIRMAN. Let me tell you what I know about it. This is from an article which I will put in the record from "Nuclear Industry", first quarter 1989, entitled "That Powerless Feeling". It describes here NEPOOL. NEPOOL is an operating procedure, according to this article, invoked in a time of crisis. There are eight different actions as part of NEPOOL which involve, first of all, operating all your facilities at 100 percent power——

Mr. BRADFORD. I was once familiar with that.

The CHAIRMAN [continuing]. Purchasing all the available power, then different steps of cutting voltage. Here is one of 5 percent cut. Action 6 is, for example, implement of voltage reduction of 5 percent of normal operating voltage requiring more than 10 minutes to implement; alert the New York Power Pool that sharing of reserves with the Northeast Power Coordinating Council may be required. It goes on further, voltage cuts, appeals on television for conservation, et cetera.

It is a whole series of steps when a crunch hits and when it is not able to maintain its operating reserve.

[The article follows:]

That Powerless Feeling

NEW ENGLAND'S INDUSTRIES COME FACE TO FACE WITH ELECTRICITY SHORTAGES. THEY DON'T LIKE WHAT THEY SEE.

BY ANITA WARREN

PHOTOGRAPHY BY MALCOLM HEWITT

It was just an ordinary August afternoon at Belden Wire and Cable Co. Suddenly, without warning, everything went black.

"The utility just flipped the switch and took us off," says plant manager John Pennington. "We were absolutely helpless for an hour, with all our machines down and 120 people just standing around."

The Shrewsbury, MA, company, which, ironically, manufactures electric cable, uses a process requiring constant temperature to maintain a flow of material through extruder heads. When electric power is interrupted, the material cools and hardens prematurely. The result is waste—and lots of it. That August afternoon, Belden was forced to scrap 630,000 feet of damaged cable. The cost of that hour's electricity interruption: $50,000 in lost materials and productivity.

"This is an area where electric power interruptions are a way of life," said Pennington. "You can see why our parent company [Cooper Industries of Houston, TX] has only one plant located in New England."

Pennington is not alone in his frustration. For companies in New England—particularly eastern Massachusetts and Rhode Island—tight power has become part of business as usual.

Last summer's sweltering heat pushed demand for electricity to "a near crisis," according to the Greater Boston Chamber of Commerce, forcing local utilities to take emergency measures. Large users were requested to make voluntary cutbacks. The New England Power Pool (NEPOOL), which coordinates electricity supply among the region's utilities, implemented brownouts (five percent voltage reductions) in eastern Massachusetts 10 times last summer. Temporary blackouts, as in Belden's case, also were reported.

George Sarney, senior vice president at Raytheon Co. in Lexington, MA, explains what has happened to New England. "In 1975, we were looking at excess electricity supply. So we didn't add new capacity in this region for 10 years, except Unit 3 at the Millstone nuclear power plant in Connecticut. But demand for power has increased in the past five years at about five percent a year; in the last two years, it's approached seven per-

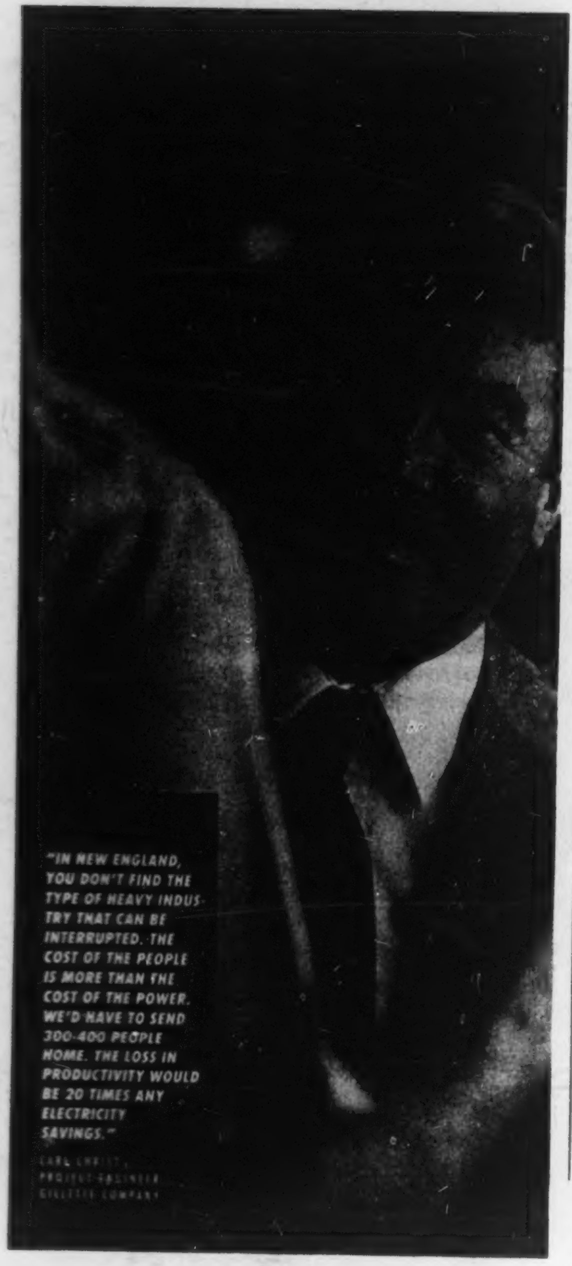
"NOBODY'S ADDRESSING SOLUTIONS—NOT THE UTILITIES OR THE STATE REGULATORS OR THE POLITICAL LEADERSHIP."

GEORGE [illegible]
SENIOR VICE PRESIDENT
RAYTHEON COMPANY

cent on the average. We've gone from overcapacity 10 years ago to a very tight situation today."

State leaders and utility officials agree that shortages are real—and more are imminent. "We're looking at a potential shortage of electric capacity for New England by 1995, and that is based on the assumption that every planned supply source is factored into the equation, including Seabrook, Pilgrim and rapid cogeneration development in the region," says John Reed, vice president of R.J. Rudden Associates, who wrote the Rudden Report in 1986 for the New England Governors Conference. NEPOOL says it will require at least 2,000 megawatts of additional capacity by 1995.

The business and industrial community is already feeling the squeeze—and they're nervous. Last summer, the Greater Boston Chamber of Commerce surveyed 100 of Massachusetts' major employers—the state's largest users of electricity. An informal survey of the five other New England states —New Hampshire, Vermont, Maine, Connecticut and Rhode Island—was conducted by the Coalition for Reliable Energy, a grass



"IN NEW ENGLAND, YOU DON'T FIND THE TYPE OF HEAVY INDUSTRY THAT CAN BE INTERRUPTED. THE COST OF THE PEOPLE IS MORE THAN THE COST OF THE POWER. WE'D HAVE TO SEND 300-400 PEOPLE HOME. THE LOSS IN PRODUCTIVITY WOULD BE 20 TIMES ANY ELECTRICITY SAVINGS."

CARL CHRISTY,
PROJECT ENGINEER
GILLETTE COMPANY

roots organization concerned with energy supply. Both surveys were spurred by the same concern. Major commercial and industrial customers "have received little attention in the energy debate and we felt their views needed to be heard," explains Coalition president Elizabeth Mudge.

The results of both studies are strikingly similar and equally disturbing. The Boston Chamber survey found that 84 percent of senior executives agreed that electricity use in Massachusetts is growing much faster than supply. The Coalition found the same result throughout New England. Ninety-two percent of the Massachusetts executives responding to the survey said they are concerned about adequate electricity supply in the next five years, and over half (56 percent) said they were "very concerned." Eighty-five percent stated they expect the state to have difficulties meeting the expected growth in demand over the next five years.

LOSSES. Sixty-five percent of the Massachusetts companies surveyed were affected or inconvenienced by either brownouts or blackouts in the previous 12 months. Nearly one-third of the companies reported some kind of monetary loss, from relatively minor to tens of thousands of dollars. According to the Chamber, energy supply shortages cost the Massachusetts business community approximately $86.6 million in the 12 months prior to September 1988.

Industrial Heat Treatment of Quincy, MA, estimates it lost $10,000 when voltage cutbacks forced the shutdown of a machine which reheats steel parts to make them stronger. Company President Peter Fallon attributes the loss to orders that could not be filled.

For Armstrong World Industries of Braintree, MA, a manufacturer of rubber insulation, the annual tab for drops in voltage —about 12 occur each year—is estimated at $25,000-$30,000. Power fluctuations shut down their gas-fired ovens and stop expansion of the insulation. "It's like opening the oven door when you're making a souffle," says Talbert Lauter, engineering manager. "The product is damaged and useless. Not to mention the 3-4 hours it takes to clean up the mess."

Companies agree that this kind of power loss—involuntary and without warning—is the most frustrating. "Electricity is something you should be able to take for granted," said Edson DeCastro, president and CEO of Data General Corp. of Westboro, MA. "You shouldn't have to worry about whether there's enough power to do your job.'

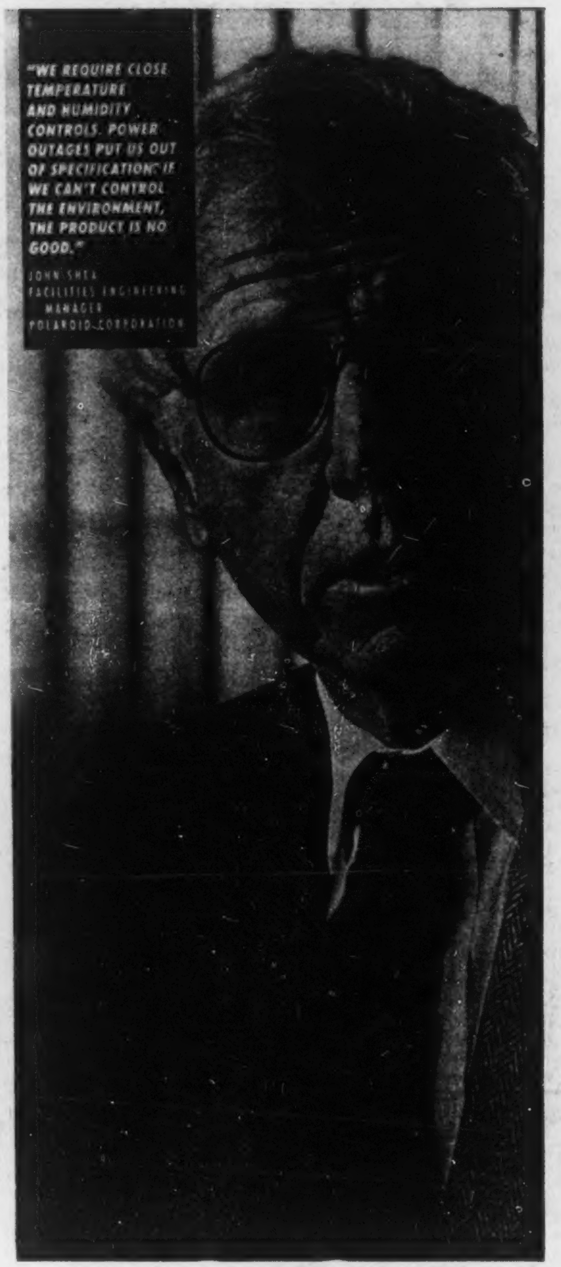
Utilities try to avoid such unplanned outages by asking large customers to curtail usage voluntarily during peak demand periods. Typically, they comply wherever possible, usually in non-essential areas like lighting and air conditioning which don't affect production. "Companies will back off voluntarily if they can," says Carl Christ, project engineer with Gillette in Boston and chairman of The Energy Consortium, a group of 40 major commercial and institutional power users in eastern Massachusetts. "We'd rather do it voluntarily than be forced to, because there are times when you can't cut back."

Sometimes, however, voluntary compliance causes greater inconvenience than just warmer office temperatures or dimmer lights. During a particularly high demand peak last August, several office buildings in downtown Boston, including Boston City Hall, shut down and sent workers home to help Boston Edison conserve power. "You can tolerate these things occasionally," said Christ, "but you can't let this become part of policy. You can't shut people down to meet demand."

FEW TAKERS. To cut demand, many utilities also offer reduced rates to large power users who are willing to have their supplies interrupted during periods of high demand. They have not found many takers. Only nine percent of companies surveyed by the Boston Chamber of Commerce were willing to have their electricity interrupted during peaks, even in exchange for a rate reduction. The Coalition for Reliable Energy found similar results, including 91 percent who said their companies had no alternative energy source to fall back on if interruptions did occur.

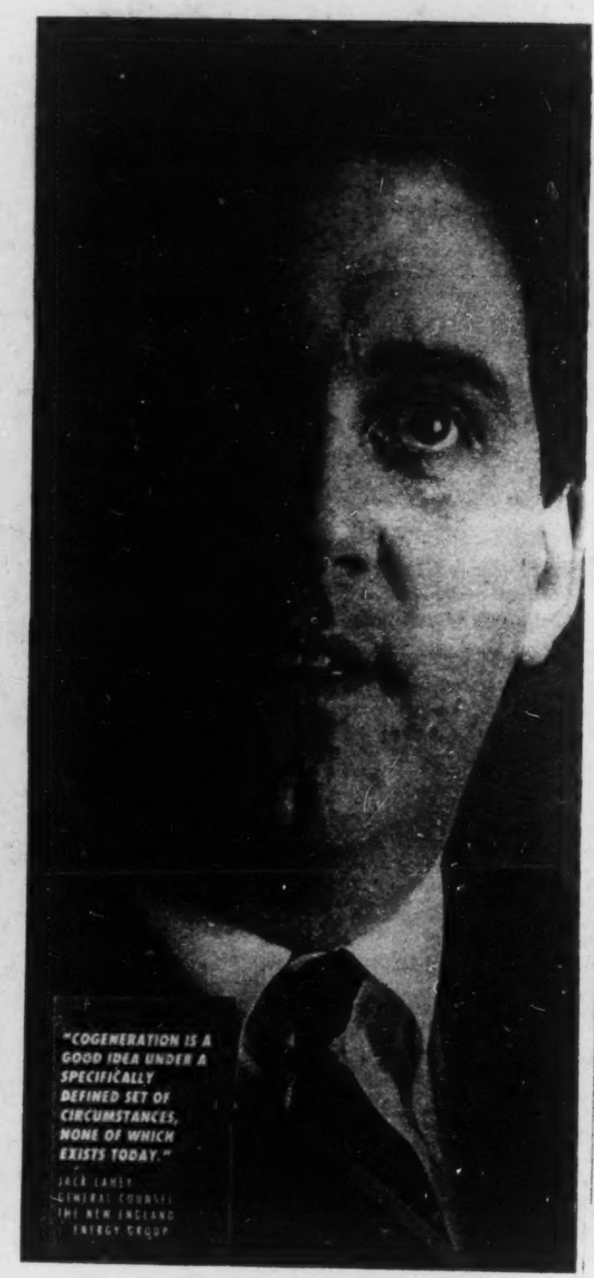
"We can't make anything without electricity," said John Shea, facilities engineering manager for Polaroid's film plant in Waltham, MA. "We're unique in that we require close temperature and humidity controls. Power outages put us out of specification. If we can't control the environment, the film is no good."

"In New England, you don't find the type of heavy industry that can be interrupted," explains Gillette's Christ. "It's not like, say, the pulp and paper industry, where you can shut down completely. With the kind of high-tech industry you have in New England, electricity is only about five percent of the production cost. The cost of the people is more than the cost of the power. At Gillette, we'd have to send 300-400 people home. The loss in productivity would be 20 times the cost of



"WE REQUIRE CLOSE TEMPERATURE AND HUMIDITY CONTROLS. POWER OUTAGES PUT US OUT OF SPECIFICATION. IF WE CAN'T CONTROL THE ENVIRONMENT, THE PRODUCT IS NO GOOD."

JOHN SHEA
FACILITIES ENGINEERING MANAGER
POLAROID CORPORATION



"COGENERATION IS A GOOD IDEA UNDER A SPECIFICALLY DEFINED SET OF CIRCUMSTANCES, NONE OF WHICH EXISTS TODAY."

JACK LAHEY
GENERAL COUNSEL
THE NEW ENGLAND
ENERGY GROUP

any electricity savings."

Raytheon's Sarney agrees. "No rate savings could justify shutting down our production."

Union Carbide is an exception—a company that has opted for an interruptible power supply contract. At its air separation plant in Suffield, CT, power is curtailed several times a year. "We shut down and live off our inventory," says Russell Noble, director of energy policy and supply. "It's not convenient and it's not cheap," he says, "but we get a discount on our power and still have a viable operation." He agrees with Christ, however, that most manufacturing operations, those which are less electricity-intensive, do not lend themselves to interruptible arrangements.

CONSERVATION. Interruptible contracts are not the only demand-side measure being touted by regulators and utilities to alleviate New England's power crunch. Conservation is also a high priority—so much so that Massachusetts regulators and energy conservation groups are urging utilities to subsidize conservation by commercial and industrial users.

At Digital Equipment in Maynard, MA, conservation measures are typical: state-of-the-art lighting, computerized energy management systems, more energy-efficient building design. Digital has even begun designing buildings with ice storage. The ice is made at night, when power demand is lower. During the day, the ice water circulates through the cooling system.

But many observers doubt whether even innovative measures like these will be enough. Eighty-two percent of businesses surveyed by the Greater Boston Chamber of Commerce report they have undertaken measures to conserve energy, yet, of these, 67 percent state their electricity consumption has increased anyway over the past two years. Only nine percent feel they could reduce their electricity use a great deal through further efforts.

"We've squeezed out everything we can justify at today's prices," says Union Carbide's Noble. "You have to be able to cost-justify anything additional—you can't do it just for kicks."

"You can't change your lighting systems every year and buy every conservation innovation that comes along," says Christ. Gillette has cut its power use by 30-40 percent since the early 1970s, he reports, "but all you can add to that at most is another 3-5 percent—and that's with subsidies from the electric companies."

"You find more rhetoric today about how conservation is the solution, but there are fewer conservation programs today than five years ago when OPEC oil was $35 a barrel," says Raytheon's Sarney. "The kilowatt-hour cost to the consumer has dropped 30-40 percent in the past five years. When you look at the economics of conservation today, they're just not there."

Data General's DeCastro says his company did all the conserving it reasonably could several years back. "The best course of action is to construct the generating facilities necessary to meet demand, not ask people to scrimp."

New England companies are being asked to do more than conserve—they're also being asked to cogenerate their own power. The Commonwealth of Massachusetts' estimates of "solid" power for 1991 includes a 300 percent increase in the amount of cogenerated electricity by 1990, says Harold Hestnes, past president of the Greater Boston Chamber of Commerce. This, he says, requires "a leap of faith." According to the Boston Chamber survey, only 17 percent of companies were able to switch to an alternative source of energy if their electricity were interrupted. Asked whether larger companies should be willing to provide at least some of their own power, 43 percent said no, and 41 percent said yes.

"Cogeneration is a good idea under a specifically defined set of circumstances, none of which exists today," says Jack Lahey, general counsel of The New England Energy Group, which represents industrial users of energy. "The most troubling aspect for industrial users is that regulators and utilities appear to be relying on cogeneration to meet demand."

"In many respects, a cogeneration unit is a small utility," Lahey continues. "It is a sophisticated task to run a utility. In deciding to construct your own cogenerating facilities, industry people have to consider whom to have as staff. Does your present staff have the capability of carrying out the functions necessary to generate power? Do they know how to make that unit run the way it should?"

Pennington of Belden Wire and Cable, which has no back-up power, agrees that cogeneration is "more hassle than it's worth." Besides, he says, "just try to get a license."

There are, of course, exceptions. For Norton Co. of Worcester, MA, cogeneration is a natural, since it uses steam to heat its abrasives plant. Its system supplies one-third of its power needs and saves the company approximately $1.75 million annually in electricity costs. Purchasing manager Max Remington says Norton is looking at expanding its cogeneration—not to save money but to become even less dependent on the utility. "Everyone in New England worries about shortages reaching the stage where they could affect operations," he says. "You just hope you can get enough power to keep yourself going."

RAZORS NOT POWER. Gillette installed a new cogeneration plant in 1971. It produces 85 percent of its power, but executives are "still concerned" about their power supplies. "We're in the razor business, not the power business," Christ says bluntly, "and we don't want to be in the power business." Because the company makes so much of its own power, it hasn't had problems with outages. But its cogeneration unit must sometimes go down for maintenance, and Gillette worries about the back-up reliability of the utility. "If electricity is only five percent of our cost, we don't want to spend 20 percent of our time worrying about it."

Digital Equipment has its own uninterruptible power back-up system of diesel-driven generators for its critical computers. But the company is considering cogeneration to escape the utility grid altogether. "To us, an interruption in power is measured in milliseconds," said Fred Guerton, corporate energy manager. "You might as well shut off the switch on us as give us a little brownout."

Although cogeneration, conservation and interruptible contracts are a help, they are not a total solution. The business community remains concerned about whether New England's power supplies can support continued economic expansion. This concern bodes ill for the region's future prosperity.

"People are scared," says Data General's DeCastro. "With supplies of electricity tight at best, people won't have any choice but to move the power-consuming parts of their operation to other parts of the country." He predicts an impact on the region's economy, including a loss of jobs.

"If you're really power-intensive, you don't think in terms of locating in New England," said Noble of Union Carbide. New England has the sort of small and medium-size industrial and large commercial power users which, he says, have less capacity to self-generate than larger users have. These users, he said, are more dependent on the utility grid, and "if utilities aren't able or permitted to expand capacity, you've got big problems."

Fifty-eight percent of the companies sur-

"PEOPLE ARE SCARED," SAYS DATA GENERAL CEO EDSON DeCASTRO. COMPANIES WILL "MOVE THE POWER-CONSUMING PARTS OF THEIR OPERATION TO OTHER PARTS OF THE COUNTRY."

veyed by the Boston Chamber—and 68 percent of companies with more than 1,000 employees—agree that a worsening electricity supply situation would keep companies like theirs from locating or expanding in the area. The Coalition for Reliable Energy found 75 percent of its respondents in the rest of New England felt the same way.

MOVING OUT. In fact, this is already happening. Norton Co. has located the electricity-intensive parts of its abrasives operation in Canada and Alabama, rather than in New England, because of lower power costs and greater reliability.

"One way to curtail development altogether in an area like Boston would be to effect a cap on the availability of electric energy supplies," said Hestnes. "A development the size of Copley Place demands as much electricity as a city of 25,000. The Fan Pier Project [a major development planned for Boston's waterfront] is twice Copley Place. If the day comes when utilities are forced to suggest to major developers that they may not be able to guarantee uninterrupted power or air conditioning for projects like these, the bloom will be off the rose."

What, then, does the business community believe must be done? Most are outspokenly frustrated that time is running out while solutions are being sought.

"If it were clear the region was acting to correct the deficiency, you'd at least feel comfortable something was being done. But nobody's addressing solutions—not the utilities or the state regulators or the political leadership," says Raytheon's George Sarney.

"Industrial users would like something more than just dialogue. The dialogue has produced more dialogue," says Lahey of the New England Energy Group. "This region is hamstrung by the inability to make a decision."

DeCastro of Data General is even more

NO WONDER THEY'RE SHIVERING IN NEW ENGLAND

Everybody talks about the weather, but in New England it has them scared to death.

The region's booming economy over the past several years has sent demand for electricity soaring, particularly during summer and winter temperature peaks. NEPOOL and its member utilities are on the thin edge of capacity to meet electricity demands this year. Another frigid winter or scorching summer like those of 1988 could plunge the area into severe power shortages.

"There is no surplus generation in New England," said Bill Shepherdson of NEPOOL. "With low outages and low planned maintenance, we'll have just about enough capacity to meet our forecast demand—barring extreme weather."

Most northern areas of the U.S. peak in the winter, with the highest power demand hitting when the temperature drops. But over the past several years, New England has developed both a summer and a winter surge in demand, with each seasonal peak exceeding that of the season before.

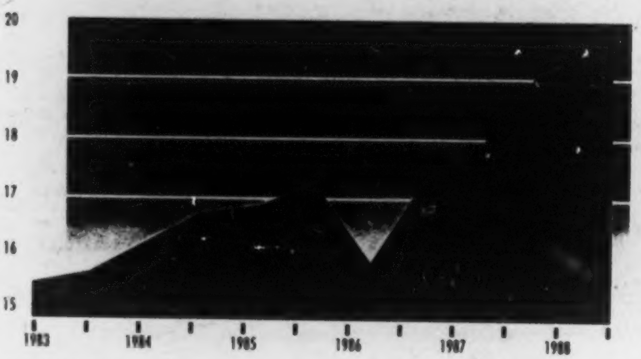
The problem with twin peaks is that utilities have little time for plant maintenance, increasing the likelihood of unplanned outages. "When the utilities are pushing the plants as hard as possible to get every additional megawatt they can, it puts a strain on the system, and there's a much higher probability of tripping out the whole system," says Marie Corio, president of Applied Economic Research, an energy monitoring and forecasting company based in New York.

Shepherdson says that "with careful planning," the NEPOOL system will be able to see the region through both the summer and winter peaks. But supplying electrical power has a way of defying precise planning.

"You can plan for the contingencies beforehand, but there comes the day of reckoning," says Eugene Gorzelnik of the North American Electric Reliability Council. "Maybe a neighboring utility you were buying power from can't meet its commitments. A transmission

NEPOOL SEASONAL PEAK DEMAND 1983-1988

(THOUSANDS OF MEGAWATTS)



blunt, attributing New England's power crisis to "political paralysis."

"The Massachusetts political leadership has not faced up to the need to facilitate the siting of electrical generating facilities," he continued. "If they believe Seabrook is unsafe and should not be opened, they've been totally remiss in not moving aggressively to establish alternatives." Seabrook, he says, "is the safest power plant in the country," but it's not the whole solution. "We need a whole lot more than Seabrook."

SENSE OF DUTY. Since its completion in 1986, the Seabrook nuclear power plant has been in limbo, facing one obstacle after another from federal regulatory agencies, the State of Massachusetts and environmental groups. Many question when the 1,150-megawatt plant will receive a license for full-power operation. But whatever the opposition to Seabrook, it's not coming from the business and industrial community. Seventy-eight percent of the companies responding to the Coalition for Reliable Energy survey believes New England needs to build more power plants. Nearly all favor the startup of Seabrook if it meets federal safety standards.

Seabrook requires "an engineering answer, not an emotional answer," said Union Carbide's Noble. "It's far and away the cleanest energy source we have. We have billions of dollars sunk in the ground with nothing happening, and that's a terrible waste."

DeCastro of Data General takes a long-term view. "The power plants we have now were built by our grandparents, not by us," he says. "We have a duty to pass on the infrastructure to our grandchildren. They're the ones who will pay a horrendous price for our lack of willingness to face these problems and make these investments." ☐

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line you expected to use may be taken out by a severe storm. Circuit breakers can fail. Or growth in demand could exceed projections. Right now, NEPOOL is basing projections of demand on normal weather —but it could be colder than normal."

When the crunch hits, and NEPOOL is unable to maintain its operating reserve, it implements "Operating Procedure Four," a series of eight emergency actions of progressive severity. In 1988, it resorted to this procedure 30 times, in 11 out of 12 months. NEPOOL projects that the early actions of OP-4 will be in effect virtually every week in 1989.

Under OP-4, explains Shepherdson, "the first thing we do is push our generators to their maximum operating capacity. Then we try to buy emergency power from neighboring systems." NEPOOL utilities have entered into a six-month contract to wheel in an additional 1,000 megawatts of power from neighboring utilities in New York and New Jersey. "On paper," Shepherdson says, this should allow NEPOOL to squeak by through April and meet the worst of this winter's peak demand.

But additional power purchases, if needed, could be hard to come by. Hydro-Quebec, which last winter provided the region with nearly 700 megawatts of electricity per month, will not have any surplus power to sell this winter. Even if additional power is available for purchase, there remains the question of how to wheel it into the region. "The transmission lines are already loaded," says Corio. "They've already bought everything they can."

If still more extreme measures are needed, NEPOOL will turn to demand-side actions, like curtailing interruptible loads. Next come five percent voltage reductions and appeals to the public to conserve electricity.

If OP-4 is insufficient to meet this year's demand, says Gorzelnik, New England will see rolling blackouts. How likely is this to happen? "I can answer that if you'll tell me what the weather will be," he said.

On January 4, the New England Power Pool hit a record peak of 19,750 megawatts—2.45 percent higher than the previous record a month earlier.

• •

NEPOOL IN A CRISIS: OPERATING PROCEDURE FOUR

Action1: Order all steam generation except internal combustion units to operate at maximum claimed capability.

Action2: Order all internal combustion units to operate at maximum claimed capability.

Action3: Purchase available emergency capacity from neighboring power pools; curtail NEPOOL interruptible loads qualifying as 30-minute reserves.

Action4: Request voluntary load curtailment at NEPOOL participants' facilities; request all of the customer generation contractually available to NEPOOL participants; curtail NEPOOL interruptible loads that require more than 10 minutes to interrupt and do not qualify as operating reserve.

Action5: Include as 10-minute non-synchronized reserve the load relief attainable by voltage reduction that can be accomplished within 10 minutes; curtail NEPOOL interruptible loads qualifying as 10-minute reserve.

Action6: Implement a voltage reduction of 5 percent of normal operating voltage requiring more than 10 minutes to implement; alert the New York Power Pool that sharing of reserves within the Northeast Power Coordinating Council may be required.

Action7: Curtail NEPOOL interruptible loads that require 10 minutes or less to interrupt; implement a voltage reduction of up to 5 percent of normal operating voltage that is attainable within 10 minutes; request the New York Power Pool to provide emergency energy to NEPOOL.

Action8: Request all of the customer generation not contractually available to NEPOOL participants; request voluntary load curtailment by large industrial and commercial customers; initiate radio and television appeals for voluntary load curtailment.

Source: *New England Power Pool*

The **Chairman**. Are we on track?

Mr. **Bradford**. Yes.

The **Chairman**. Now according to this article, in 1988 NEPOOL resorted to this procedure 30 times in 11 out of 12 months, and you depend upon NEPOOL, do you not, for part of your power?

Mr. **Bradford**. Senator, some added clarification. NE in this case stands for New England, not Northeast, so that it really is the pool that does not serve New York.

The **Chairman**. You get power from NEPOOL, do you not?

Mr. **Davis**. No, we get no significant—we are a net seller to NEPOOL. We are a net importer in total of about 8 percent of our power, but we also sell some power. We are not a net importer——

The **Chairman**. There is 100 megawatts coming from NEPOOL, is there not?

Mr. **Bradford**. That actually comes from New York State in electric and gas through NEPOOL to Long Island. So it originates in New York, but your description of NEPOOL's power to interrupt and divert that you gave earlier is correct.

The **Chairman**. Of course, we are concerned about electricity anyway, so let me ask Mr. Flynn.

This article goes on to say that NEPOOL projects that early actions of OP-4 will be in effect in virtually every week in 1989. Would that be correct?

Mr. **Flynn**. Sir, we are not a member of the New England Power Pool. We operate in the New York Power Pool, and although the Power Authority is a member of the New York Power Pool, their power situation does not correspond to ours. So that really is not applicable in my jurisdiction. I do not want to be evasive, but I think——

The **Chairman**. The point is we have a grid up there, and part of the grid at least is quite short, and it sounds like pretty much an emergency situation from NEPOOL to me.

Mr. **Bradford**. If I could put my Maine hat back on for a moment, your concern with the New England Power Pool does illustrate the need for you to hear from a New England regulator or State energy official at some point.

OP-4 does indicate those are the standby conditions, but the need to dip into it, while it indicates that the margins are getting tighter, is not in itself, certainly not at the upper levels of OP-4, a significant consumer hardship or item of expense. It includes things like appeals to customers to curtail their use. The first level of voltage reductions is not in itself a particularly troubling proposition.

More importantly, though, as I indicated at the outset, there is a lot the New England utilities could, at least as of 1986, could have been doing in lining up interruptibility in more energetic promotion of energy conservation that they just have not been.

Certainly if the shortage situation in New England were to become more serious than it has been in years past, they are going to have to answer some very serious questions about whether they have, in fact, been going a little slower on that, say, than their counterparts in Maine, which when I last knew about it had more than 90 percent of the region's interruptible power, than they could have absent the Seabrook dilemma.

The **Chairman.** Now according to the Department of Energy Office of Energy Emergencies, it indicates that the estimated adjusted reserve of LILCO is 7 percent. That includes, though, the 100 megawatts from NEPOOL. If you take out the 100 megawatts from NEPOOL, in other words if NEPOOL is short, which that article would suggest that they were, then the reserve margin would drop to 4.3 percent for LILCO.

Is the Department of Energy wrong in those estimates?

Mr. **Davis.** Senator, I am not sure whether the Department is right or wrong because of the word "adjusted" in that definition of reserves for Long Island. I do not know what they have done when they adjusted——

The **Chairman.** Adjustment for capacity unavailable, 500 megawatts.

Mr. **Davis.** Yes. Our own projections of the Long Island situation which are quite similar to the Long Island Lighting Company's projections show them able to meet their contractual obligation to the New York Power Pool of 18 percent reserve margin throughout this summer.

There is no question that in the early portion of the summer their situation will be tighter than they would like to see it or that we would like to see it.

The construction of the 380 megawatt combustion turbines that are scheduled in July and August, as Mr. Bradford has said, should improve that situation significantly.

The analyses of both us and the Long Island Lighting Company show that the way we define reserve margin and the way it is defined in terms of LILCO's contractual obligations in the New York Power Pool, they should be able to meet their obligations.

Mr. **Bradford.** I think the short answer is that DOE is wrong.

The **Chairman.** Is wrong?

Mr. **Bradford.** Is wrong. If the power pool considered LILCO to be below their 18 percent requisite margin, they would be billing them accordingly.

The **Chairman.** Well, there is quite a difference here. You project an 18 percent reserve margin, and they are at 4.3 if you take out the NEPOOL power. That is the magnitude of the difference, is it not?

Mr. **Bradford.** Yes. I think in a nutshell that reiterates my wish that the Deputy Secretary had seen fit to consult with New York officials in the course of preparing his testimony. We could have resolved that issue instead of dropping it on your table, and perhaps we can after this hearing.

The **Chairman.** If that was correct, if the operating margin here were only 4.3 percent, would that be dangerous? What would that indicate?

Mr. **Davis.** That would be a very low reliability situation. It would likely indicate a significant number of voltage reductions and could indicate rolling blackouts if we had reserve margins as low as 4 percent at Long Island.

Once again, we do not anticipate those things the way we calculate reserve margins and the way LILCO's situation appears to us and LILCO.

The **Chairman**. To sum it up, if the Department of Energy is correct, then brownouts and blackouts are a real possibility, an expected possibility. You believe that they are not correct, that the operating margin is not 4.3 percent but, rather, 18 percent; therefore, you do not expect, that is the basis on which you say that New York does not face brownouts? Is that correct?

Mr. **Davis**. Senator, that is basically correct. There have been a significant number of brownouts projected for Long Island for the last three summers, and in fact in New York State as a whole and on Long Island we have not had brownouts that have occurred during the summer peak capability period that have been in any way associated with the adequacy of generation supplies.

The **Chairman**. Did LILCO operate at 98 percent capacity last year?

Mr. **Davis**. If you mean availability in terms of unavailable capacity, that number is very close, I think, to what we have. They had a very, very low unavailable capacity during their peak periods last summer.

Mr. **Bradford**. But that is the product of the targeted maintenance program that they have repeated this year. It is one of the things that a utility facing shortages at a particular time can do both in terms of keeping its own units ready to run during that time and also looking to its customers for interruptibility.

The **Chairman**. I will have some more questions in writing, and I will particularly look forward to getting the detailed analysis of LILCO operating projections and decommissioning projections.

Senator McClure.

Senator **McClure**. Thank you very much, Mr. **Chairman**.

I do not know how to discuss the issues without getting into questions of public policy, and that involves people who are formulating public policy.

Senator Bradley earlier implied that I should not have mentioned personalities, and perhaps not, but I do not know how to identify policies without that. That is an unavoidable difficulty. I suspect that occasionally people who look at the Congress in the United States may even point to a Senator or two as the cause of the problem they perceive, and they may even be right.

I am not asking these questions in order to divert attention away from public policy but, rather, to focus on it.

It is my understanding that both the Public Service Commission of New York State and New York Power Authority personnel are appointed by the governor of the state; is that correct?

Mr. **Bradford**. It is, with one caveat. The Public Service Commission is a seven-member body. It is required by statute to have at least three members of both parties. The Senate in New York is Republican, the governor is Democratic. The tradition has been that the Senate majority leader has a very, very strong voice in the naming of the Republican members of the Public Service Commission.

Senator **McClure**. Is that still correct?

Mr. **Bradford**. Yes, that is still correct.

Senator **McClure**. So is it fair to say that the Republican Party in New York is responsible for the personality and identify of certain members of the commission?

Mr. **Bradford**. I would stop at very strong voice. They have had a very strong voice in the selection.

Senator **McClure**. I have a very strong voice, too, but sometimes it makes no difference. [Laughter.]

Mr. **Bradford**. It was my understanding, and I was in Maine at the time, that it made a very strong difference in this last round of appointments.

Senator **McClure**. The same thing is true with respect to New York Power Authority?

Mr. **Flynn**. The same thing is true, Senator. We are five. We are appointed on a rolling year basis. We have no statutory mandate that there be a certain number of our trustees from the Republican Party, but the facts are until very recently we have been operating with a very limited board because the Senate has not approved a number of potential trustees.

Senator **McClure**. I guess it is fair to say that even though a member of the State Senate may have a strong voice, the governor's voice is stronger?

Mr. **Bradford**. Again, I have only been in New York a year and a half. My understanding is that when the governor nominated Republicans who had not been approved by the Senate majority leader in 1987, the nomination sat unacted on in the Senate until they were withdrawn and replaced by those whom he had their——

Senator **McClure**. I do not want to get too deeply into New York politics. I am not a competent observer of New York politics and do not intend to be so.

Mr. **Bradford**. I sympathize.

Mr. **Flynn**. I do, too.

Senator **McClure**. I understand that in the meantime, the Senate Republican leader had been replaced with another one.

Mr. **Bradford**. That is true. Senator Anderson retired last year.

Senator **McClure**. Let me ask this question because I think the answer is obvious, and I hope it is. I assume that it is not standard policy for the Public Service Commission of New York to grant substantial rate increases for a plant that is not even going to produce one kilowatt of power.

Mr. **Bradford**. Certainly as a general proposition, it would be unattractive to answer that question in any other way than no—— [Laughter.]

Mr. **Bradford** [continuing]. But I want to be cautious because we have not, in fact, granted increases for Shoreham in this case, either.

Basically, the standard the commission has historically used is, I think it is fair to say, one of prudent investment. If the investment is viewed as having been made prudently, the company recovers it.

Senator **McClure**. There will be between $3 and $4 billion of cost here going to the rate base, and that plant will produce no electricity.

Mr. **Bradford**. Again, there is that amount of money going into rate base. It is not, however, Shoreham. It is the amount of money labeled a financial asset necessary to bring LILCO back to financial health over a reasonable period of time.

Senator McClure. The public policy is because Shoreham caused local problems, you will bail LILCO out without calling it Shoreham?

Mr. Bradford. Oh, no, definitely not.

First of all, the commission before I got there disallowed $1.4 billion worth of Shoreham as imprudent.

Senator McClure. I understand that, and I do not want to beat a dead horse. I do not want to take a long time exploring this particular facet, but without asking you a question that will elicit a defense of your position, let me make a statement that it seems obvious to me no matter what semantics you place it in that the ratepayers are going to pay a rate increase because of Shoreham even though Shoreham produces no power.

I hope I rephrased that in such a way that you do not feel your honor has been assaulted.

Mr. Bradford. I can almost even agree with it. [Laughter.]

Senator McClure. That is better than average.

Mr. Bradford. If you will just bear with me and agree that that increase is less over the life of this agreement than they would pay for Shoreham if Shoreham were to produce power.

Senator McClure. That is a different issue, and I understand your argument on that, although I do not agree with it.

Now I assume that there is a standard policy that is applied with respect to a penalty charge if the New York utilities do not maintain their 18 percent reserve?

Mr. Bradford. That I believe is correct.

Senator McClure. That is correct. What is the amount of that charge?

Mr. Bradford. I know what the short answer is to it, but my guess is that it varies with the value of the kilowatt during the year in which the deficiency occurs.

Mr. Davis. Yes, I think that is true. It varies.

Senator McClure. It is a variable rate, but there is a charge.

Who pays for that charge? Do the ratepayers pay it, or do the stockholders pay it?

Mr. Bradford Let me ask.

I would think it would depend on the reason the charge was incurred. Again, if the charge resulted from imprudence of some sort that caused the utility to fail to meet its obligations, it would be charged to the stockholders. If it were the result of something that reasonable management could not have avoided, then my guess is it would have to be paid for by the ratepayers.

Senator McClure. In your calculations of comparative costs or value or benefit to the ratepayers of the LILCO arrangement, what have you assumed with respect to oil prices?

Mr. Bradford. I am told it is 2 percent over the rate of inflation for the first four years and then 4 percent absolute for the years after that.

Senator McClure. Certainly all of us know the difficulties of making projections, and I want to be up front. I understand that is a very difficult forecast.

What have you forecasted with respect to the cost of natural gas?

Mr. Bradford. There is no gas forecast built into it.

Senator McClure. You anticipate no gas generation?

Mr. **Bradford**. We do anticipate gas generation. I had suggested earlier that it might be a good idea if Bill Cowan, our General Counsel, joined us at the table because he knows the inner workings of the agreement in more detail than I.

Senator **McClure**. I was not thinking of the agreement as much as I was what you are using as a basis for your forecasts, because there has been a lot of talk of the substitution of other electricity sources.

Now if I understand the conversation, we have talked a great deal about including natural gas generating plants as a part of that forecast. I would assume, therefore, you would have some forecast for the cost of the natural gas.

Mr. **Bradford**. Senator, what we have used is for the power that would come from gas, which is not a significant component of the LILCO system today, we have assumed that LILCO will buy power through their bidding system from third-party producers and that that power will be delivered at the avoided cost as we now project it. The bidding system may in fact do better than the avoided cost.

So those are the numbers that are used, and they rolled in the number that is independent of the particular source that the power may come from. But if those avoided cost forecasts are accurate, then the settlement forecasts are accurate.

Senator **McClure**. Do you anticipate that a portion of that will be coal-fired capacity?

Mr. **Bradford**. With regard to anything that is based on the bidding system, it is done independent of the source of the power.

Mr. **Davis**. Senator, on a statewide basis we do have an energy planning process under way that will produce a draft State energy plan on May 1. That plan will be subjected to public scrutiny and public hearings and finalized by July 31.

Within that plan that looks at the entire state and which looks, therefore, also at Long Island, we have projections of natural gas prices and projections of oil prices over the next 20-year period, and there is incorporated in that plan or will be when it comes out some projections as to the independent power projects that are currently under way in New York and that are likely to precede bidding, and we have a good understanding on a project-by-project basis of which of those are proposed to be fueled by natural gas, which are proposed to be fueled by coal, and which are proposed to be fueled by refuse and other sources.

Senator **McClure**. If I understood Mr. Bradford's response to my question, the projections that were used upon which to base the decision about which benefitted the ratepayers the most with respect to the Shoreham plant did not look at those factors but made the assumption that there would be alternative sources based upon and provided on a competitive bidding basis, irrespective of the source of the energy.

Mr. **Bradford**. That is correct.

What I had wanted to check and now know the answer to is that a proxy coal plant was not used in calculating the avoided cost, either. So it is not assumed explicitly as one of the sources, and it is also not implicit in the avoided cost.

Senator **McClure**. Mr. Flynn, if I understood your comments earlier, you were expecting 4,800 megawatts of coal-fired capacity.

Mr. **Flynn**. That is correct. That would be statewide capacity, and I believe 96 was the figure mentioned in my remarks.

Senator **McClure**. What is the anticipated cost of kilowatts produced from a coal-fired plant?

Mr. **Flynn**. I think you have to understand what we do, Senator. We are in essence a competitive bulk wholesaler, so that figure, knowing of your concerns for diversity in this state, we were attempting to demonstrate to you that the Canadian purchase, while beneficial and economic, is still in no sense going to be overrelied on by the state as a source of energy.

It is not our statutory function as such in essence to take coal out that far, to the mid 1990s. We really in essence are kind of a least cost business operation, and overall State rate forecasts as such really are not a part of our function.

Senator **McClure**. I understand that, but there are certain assumptions that go into this, and that is what I am trying to get at because that is what we are talking about.

Mr. **Flynn**. I understand that.

Senator **McClure**. What are the options for a region? How are they going to meet needs? If I understand, LILCO's reserves are going to drop substantially below the 18 percent reserve margin. If I understand it correctly, there is a penalty charge.

Mr. **Bradford**. We do not anticipate LILCO falling below the 18 percent reserve margin.

Senator **McClure**. You are more optimistic than others, and you may be right.

Mr. **Davis**. We and LILCO.

Senator **McClure**. Well, LILCO has been given the kind of deal that they cannot refuse, have they not? If you will agree to what we say, we will bail you out.

Now, I really do feel sorry for the people that run LILCO because I do not see how they can avoid accepting a deal that gives them life as contrasted with one which threatens their death. They are scarcely arm's-length transactors in this case.

My information would indicate that they are going to drop below the reserve requirement, and I would assume that there is a penalty rate that will be assessed unless it is waived. That is an additional cost that will be borne either by the stockholders, which they obviously cannot do because you are already bailing them out, or it must be borne by the ratepayers and is not reflected in your rate projection.

That is the thrust of my comment, but I do not have time to go further into that at this moment.

Mr. Flynn, you know your charter requirements far better than I.

Mr. **Flynn**. Yes, sir.

Senator **McClure**. It has been suggested to me that the charter requires that any price that the authority pays for purchase of a completed facility be subject to approval by the State comptroller.

Just as a matter of curiosity, did LILCO have to have a similar approval for purchasing Shoreham?

Mr. **Flynn**. Respectfully, Senator, I am not aware of that requirement that any price we pay for a plant be approved by the State comptroller.

Just one second, please.

I have an answer on that. That particular requirement was part of a piece of legislation that related to the purchase of the Con Ed plants. That was in the early 1970s.

Senator McClure. Does that apply to Shoreham or to LILCO or to LIPA?

Mr. Flynn. We are not, sir, specifically authorized under State legislation to purchase Shoreham as a nonoperating facility.

Mr. Bradford. I think the point is it applies to no one other than the Power Authority when it purchased those two Con Ed units. It does not even apply to the Power Authority for any other purchases that it makes.

Senator McClure. Again, I am no expert in your charter, but nowhere in the charter do I see anything that would suggest you have the authority to enter into the contract with LIPA to decommission Shoreham.

Mr. Flynn. Yes, we have looked into that carefully, sir, and we find clear statutory authority considering the nature of the transaction. We certainly are empowered to operate nuclear plants as such, so that we are expert in the area of decommissioning.

Senator McClure. I do not question that part of it. Certainly you are operators.

Mr. Flynn. Right. So that we have had done here is we have negotiated a carefully sculpted transaction, and in essence we are providing our expertise but we are providing it on a for-hire basis as such.

One of the central concerns that face the trustees was the question of the overall economics of the transaction. So what took place here was an arrangement where we could, under the charter, provide our nuclear expertise on a for-hire basis, not violate statutory authorization, and do it on an economical basis.

Senator McClure. Well, as I indicate, there are those who have advised me they do not think you have the authority to do this. I do not know whether you do or do not. I suspect if they feel strongly about it you may find out in a court whether you have the authority.

Mr. Flynn. If it is reassuring, Senator, look and hard and feel that we do.

Senator McClure. Again, I do not want to prolong this and I will submit the balance of my questions for the record, but I do want to comment that, again, both of you have responsibility with respect to the environment as well as the electric supply. The alternatives, Mr. Bradford, you have indicated you have not looked at where the electricity will come from. It will be by the lowest bidder.

Mr. Bradford. The best bidder, not necessarily the lowest.

Senator McClure. All right, the best bidder. There is no question that the bidders are likely to be fossil fuel burners. There is the possibility for some refuse.

I would also just for the record while you are here and have the capacity to respond, there has been a kind of a brushing aside of this question of interruptions, and I do not know how serious they are.

We have a letter addressed to the Chairman of the committee from Grumann. Grumann said last year it was called upon to shut down manufacturing and computer facilities on five separate occasions because of power shortages, and that was not during the winter months alone. It says this winter we have already been called upon to shed load on two occasions.

Mr. **Bradford**. I think the point is, Senator, that Grumann has been paid the value of being an interruptible customer and that LILCO has such arrangements with a fair number of its customers. It is a less expensive way of meeting the peaks than either running the units or building new ones. So Grumann has actually benefitted or they would have not entered into a contract that allowed them to be interrupted had it not been for the fact that it was attractive to them.

Senator **McClure**. I fully understand the benefits of interruptible power contracts and the arrangements on the part of the utility to enter into those contracts as well as the consumers.

I also fully recognize the fact that if those interruptions become too frequent, that customer no longer will be willing to pay that price and will, therefore, change the contract either to firm power or move to a location where it does not have that cost——

Mr. **Davis**. Mr. Senator, Grumann has a 50 megawatt co-generation plant that is due to go on line this summer that will meet all of their needs and allow them to sell power to the Long Island Lighting Company.

Mr. **Flynn**. Senator, on the diversity of energy source point and the Power Authority, I think it is significant to note that about one-third of the estimated capacity needed by the Island between now and the end of the century will be provided by the Power Authority, and this will be via the Canadian purchases plus other Power Authority hydro sources.

I do want to emphasize that a good deal of our approach here is providing diversity of energy and improving the environment, also improving the economics in this 85 percent oil dependent territory.

Senator **McClure**. Mr. Chairman, I will submit the balance of my questions.

The **Chairman**. Thank you.

Gentlemen, obviously we have just gotten to the surface of these questions. The two big questions, of course, first, the question of reliability on which there is a drastic difference of opinion between the Department of Energy and you gentlemen. I think we ought to have communication between you two so we can get to the bottom of that.

Secondly, I must say I am not satisfied that you can build two sets of generating capacity and end up with a cost less than that for building the first.

If that is possible to do, we ought to get you gentlemen to run our Federal budget because we could make that deficit disappear.

We look forward to your detailed treatment of that issue in writing.

Mr. **Bradford**. Senator, if I could with regard to that last point, with nuclear units you build them twice anyway. You build them once and turn them on, and then the capital addition to the history of these plants has been that the rate of the capital additions, believe it or not, is a significant part of the costs that we are using to replace them.

Many of the older units simply do not depreciate because the amount of new investment that has to be put into them each year offsets the amount of depreciation.

The **CHAIRMAN**. I look forward to your figures on that.

Mr. **BRADFORD**. That is one of the savings that you asked about before.

The **CHAIRMAN**. I look forward to those figures on that.

Gentlemen, thank you very much.

Finally, we have Mr. George W. Edwards, Jr., Chairman and CEO of United Illuminating Company of New Haven, Connecticut, who is testifying on behalf of Edison Electric Institute and the New England Power Pool.

Mr. Edwards, I am sorry we had to squeeze your time here. I hope you can summarize so we can have time for questioning, because I know I have a luncheon that starts in 22 minutes.

STATEMENT OF GEORGE W. EDWARDS, JR., CHAIRMAN AND CHIEF EXECUTIVE OFFICER, THE UNITED ILLUMINATING COMPANY, ACCOMPANIED BY JOHN F.G. EICHORN, JR., CHAIRMAN, EASTERN UTILITY ASSOCIATES

Mr. **EDWARDS**. Thank you, Senator. I will. I think I can do this in about 10 minutes, and if you tell me to I will do it in five.

The **CHAIRMAN**. We want you to get to the main points.

Mr. **EDWARDS**. Obviously I have submitted my full testimony to the committee, and I will summarize it for you. You have already identified who I am and who I am representing here.

I have with me my good friend and partner from Seabrook, John Eichorn, who is Chairman of Eastern Utility Associates. He is also Chairman of the Joint Owners Executive Committee of Seabrook. His company is the third largest owner of Seabrook. Mine is the second.

As you mentioned, I am also Chairman of the New England Power Pool Executive Committee, and NEPOOL's mission is to operate all of the region's generating and transmission systems as though they comprise a single integrated utility, plus we are responsible for doing the short- and long-term forecasts.

John has also held that position. As a matter of fact, I do not think there is any position in New England that he has not held in his 40 years of experience up there.

In response to Mr. Bradford's suggestion about hearing from a regulator in New England, I would highly recommend that to you, and I will allude to this a little bit later. I may get in trouble with the chairman of my own Department of Public Utility Control by volunteering him. Commissioner Peter Boucher is Chairman of the New England Governors Power Planning Conference and has a world of knowledge in this area. He probably would give you a little bit different perspective than you heard from Mr. Bradford.

I can assure you that NEPOOL utilities understand this committee's concern about our region's supply and demand situation. While the purpose of the hearing today is to look at the Northeast region and mine, of course, the New England area, many of the issues are of national concern and are receiving intensive examination by all investor-owned electric utilities represented by the Edison Electric Institute.

At this point I would like to mention the New England Governors Conference, which is engaged in a remarkably cooperative effort among the State regulators and utilities to deal with our supply situation. Commissioner Boucher, the chairman of the Connecticut commission, leads that effort.

No matter where we might disagree on the means of how to get there and how to do the job we are responsible for, we are completely united in not allowing electricity supply deficiencies to be an anchor on the region's economy. That is not going to happen easily.

As has been pointed out here by members of the committee, there have been interruptions already in New England. Ten times last summer NEPOOL utilities imposed voltage reductions and made public appeals for maximum possible conservation. As has been pointed out already, that is not without economic cost.

In Massachusetts alone, an October survey of 100 large businesses by the Greater Boston Chamber of Commerce found $87 million in lost revenue, due among other things to voltage and temperature reductions and temperature sensitivities in electronic and material processing industries.

I would point out here there is a limit to what these types of businesses will accept as far as interruptible types of rates. Now if that winds up being the social policy or the public policy of the region, then so be it. I submit to you that manufacturing firms will not tolerate that for a very long period of time. We certainly do have that available to us and are implementing interruptible rates throughout New England.

The difficulties of meeting growing demand are not limited to hot weather periods. The winter of 1987–88 also saw NEPOOL utilities make public appeals for every last kilowatt of conservation available.

As for the future, I am personally very concerned about a growing perception by the business community that electric power inadequacy in New England may be harmful to the competitiveness of the region's businesses, and this is not coming from me. This is coming from them.

Please believe me, Mr. Chairman. We hear the message, and I can assure you and my own regulators and my own governor that United Illuminating is going to meet the load as will other NEPOOL utilities in cooperation with our regulators. The question is, as Senator McClure has very accurately pointed out, how reliable will it be and at what price and what impact on the environment.

All I can say with certainty right now is that demand will be met with new plants of some type, massive conservation and cogeneration and nine utility generators.

In this context I would like to share our view of the supply and demand situation over the next several years in New England. We are predicting that our peak demand summer-to-summer load growth will grow at a rate of about 2.2 percent per year during the 1988 to 2004 time frame. That is average annual load growth peak to peak, summer to summer.

That is probably low. We have been low for a number of years running; however, economic conditions are changing in New England, and I think there is some pretty good reason to expect that they will be lower than in the past.

The actual load growth, for example, in the 1987–88 time period has averaged 4 to 5 percent per year, much higher than that in the summer of 1988, but we think that is an aberration. We had an extremely hot summer.

Given NEPOOL's number, our latest forecast, the one to which I just alluded, shows NEPOOL capacity deficit from the reserve level requirement of 859 megawatts by 1995, roughly the size of one of our smaller nuclear units. Mr. Chairman, that is the good news.

The capacity deficit just cited of 859 megawatts is possible only under a set of certain "ifs" which I will cite. If the 1,500 megawatt Hydro Quebec phase two capacity transmission line comes on line as scheduled for availability during the 1991 summer peak; and if the region's co-generation capacity rises 65 percent to reach the 1,861 megawatt level forecast by NEPOOL for 1995; and if the Pilgrim nuclear plant returns to full service by this summer peak; and if Seabrook is available for the 1990 summer peak; and if savings from our total demandside management and conservation programs are able to rise 16 percent to reach the 1,759 megawatt level that we forecast for 1995; it is only when all of these conditions occur that the capacity deficit for 1995 is limited to 859 megawatts.

I have submitted with my testimony the forecast that has the backup for all of these numbers.

The most sobering situation would arise from Pilgrim and Seabrook not being available as scheduled. If that were the case, the capacity deficit would balloon to a staggering 2,679 megawatts by 1995. It is a very simple lesson for those of us in the NEPOOL system. You strip away any key capacity assumption, and the utility managers face an even more difficult supply and demand situation.

The same lesson applies to conservation efforts that are anything less than aggressive and massively effective. I know that every utility in New England is on the national cutting edge of implementing conservation programs.

The other "ifs" are full of policy implication that I am certain the committee will see as extending beyond New England's energy future to issues at the center of the nation's electricity supply.

Seabrook is illustrative of many of these national issues, and in this regard I am going to take off my NEPOOL hat and speak strictly for the joint owners of Seabrook. I certainly do not want to offend any of my colleagues' sensitivities.

As you know, construction of Seabrook was completed over two and a half years ago. It is ready to go. The prospects for commercial operation are brighter now than at any other time, and I am firmly convinced that we are going to license Seabrook this year.

The prospects are brighter than any other time since Massachusetts announced in September 1986 it would not participate in emergency planning for six Massachusetts towns that lie within the plant's 10-mile emergency planning zone. We are now on the last track in obtaining a full power license. On March 1 the Atomic Safety and Licensing Board hearing started in Boston which will determine the accuracy of the emergency plan of the joint owners submitted by the four to six Massachusetts communities. Those are scheduled for completion by September 30.

For the record, I would like to repeat something that many members of the committee already know. All of the delay from the fall of 1986 in Seabrook's operation is attributable to the owners having to prepare and submit their own emergency plan to compensate for the absence of the Massachusetts plan. This plan has had to be evaluated and tested by FEMA, which it has been and passed with flying colors, and is now being finally litigated by the Atomic Safety and Licensing Board.

Should Seabrook be the only "if" that does not materialize to meet NEPOOL's 2.2 percent load growth, the region's capacity deficit for 1995 is 2,009 megawatts.

As much as the situation has improved since the fall of 1986, the emergency planning controversy surrounding the plant has been costing millions and millions of dollars a month, in excess of $30 million per month. It has absorbed the managerial and financial resources of its owners in a way that none of us could have imagined when the project was first conceived nearly 20 years ago. Had we known that subsequent changes in law and regulatory requirements could allow one state in which the plant is not even located to put a safe, needed, completed project at risk simply by walking away from emergency planning, we would have never undertaken it.

Seabrook and Shoreham stand today as perhaps the single greatest impediment to further alliance on nuclear energy in the United States. No other chief executive officer I know would even consider building another one, even under a one-step licensing process, unless Seabrook proves that the emergency planning hurdle can be overcome.

In short, the licensing of Seabrook will finally demonstrate that the Federal Government is in charge of the country's nuclear enterprise, and unless it is in charge there is no nuclear option.

Another major NEPOOL forecast assumption is the availability of 1,500 megawatts of firm power, not surplus but firm power from the Hydro Quebec phase two transmission line in the summer of 1991. I might add that project is moving along very well.

The CHAIRMAN. Please sum up, because we really are running out of time.

Mr. EDWARDS. Okay.

I would point out that one of the things that we have to grapple with is because we have been interrupted by Hydro Quebec in the past, we have to grapple in New England about how much we really want to depend on our Canadian friends. I will tell you this, and I do not mean this in any way critical to them because they have helped us a great deal by displacing a great amount of oil-fired capacity.

Summing it up, Mr. Chairman, we are going to meet the load, as I mentioned earlier, through new plants, conservation, co-generation and any other means that we possibly can. We do need Seabrook, and I am confident that it will come on and will be licensed this year.

We have some public policy decisions to make in New England, but I am pleased to report to you that it is not a combative relationship. There is a cooperative effort going on between the New England governors and the regulators and the utilities. We have decided that it is much better to approach things that way than to be confrontational all the time. We have learned the hard way, though.

Thank you, sir.

[The prepared statement of Mr. Edwards follows:]

STATEMENT OF GEORGE W. EDWARDS, JR.
Chairman and Chief Executive Officer

THE UNITED ILLUMINATING COMPANY

Before The
COMMITTEE ON ENERGY AND NATURAL RESOURCES

UNITED STATES SENATE

April 13, 1989

Thank you very much, Mr. Chairman. My name is George Edwards.

I am Chairman and Chief Executive officer of The United Illuminating Company (UI), headquartered in New Haven, Connecticut. UI serves over 300,000 customers in the rapidly growing industrial heartland of our state from a resource mix that relies heavily on oil and coal-fired power plants, as well as on 98 MW of capacity UI owns in the Connecticut Yankee and Millstone 3 nuclear power plants. We also hold the second-largest ownership share of the Seabrook nuclear power plant in New Hampshire.

With regard to Seabrook, Mr. Chairman, I note and sincerely appreciate the interest that members of the Committee have shown over the years in the status our plant. With me today to help answer your questions is John Eichorn, chairman of Boston-based Eastern Utilities Associates which is the third-largest owner of Seabrook. Mr Eichorn is also chairman of the Seabrook joint-owners executive committee.

I am also chairman of the executive committee of the New England Power Pool - or NEPOOL, as it is called. NEPOOL today includes virtually every electric utility in the six-state New England region.

Before describing NEPOOL and the New England electricity situation more fully, I'd like the Committee to know that scheduling constraints did not allow me to have my remarks here today fully vetted by my colleagues throughout the six states. There are, as I'm sure the Committee appreciates, different circumstances and sensitivities from state to state and from company to company. So for the record, I'd like to apologize to my colleagues in advance for anything in my testimony with which they might take issue.

NEPOOL's mission, Mr. Chairman, is to operate all the region's generating and transmission systems as though they comprised a single integrated utility. Through NEPOOL, we're able to enhance the reliability and economy of electric service by providing minute-by-minute, least-cost central dispatch of all generating units as well as by coordinating maintenance schedules.

Mr Chairman, I assure you that NEPOOL utilities understand very clearly the Committee's concern about our region's electricity supply and demand situation. And while the purpose of today's hearing is to look at the northeast region, many of the issues are of national concern and are receiving intensive examination by all investor-owned electric utilities represented by the Edison Electric Institute. If we're unique in New England, it's because we're having to work much faster with all the parties involved.

The New England Governors Conference, regulators and the utilities themselves are bringing many disparate views together in a cooperative effort to deal with our supply situation. No matter where me might disagree on the specifics, we are completely united in the single purpose of not allowing electricity supply deficiencies to be an anchor on the region's economy. We will not permit that to happen.

All of us know the stakes very well because New England homeowners and businesses have already been asked to help us meet tight capacity situations. Ten times during the summer of 1988 - just a few months ago - NEPOOL utilities imposed voltage reductions and made public appeals for the maximum possible conservation. In Massachusetts alone last year, an October survey of 100 large businesses by the Greater Boston Chamber of Commerce found $87 million in lost revenue due, among other reasons, to voltage and temperature sensitivities in the electronics and materials processing industries. It should be stressed again that the survey I cite covered only 100 companies in but one of the six New England states.

The difficulties of meeting growing demand are not limited to the hot weather periods. The winter of 1987-88 also saw NEPOOL utilities make public appeals for every last kilowatt of conservation available.

As for the future, I'm concerned about a growing perception that electric power inadequacy in New England is harmful to the competitiveness of our region's businesses whose marketplaces are both national and international. Some of our customers - major employers with household names - are speaking clearly and publicly of there concerns about NEPOOL's capacity situation.

Finally, as I know some members of the Committee are already aware, a Federal Reserve Bank of Boston report in late 1987 warned that electricity shortages were "a question mark for any business contemplating coming to New England."

Please believe me, Mr. Chairman, we hear the message. My colleagues and I understand and believe in our obligation to serve. United Illuminating Company will meet its load, as will the other NEPOOL utilities in cooperation with our regulators and state administrations. The question is how reliably we'll be able to do it, and at what price. All I can say with certainty right now is that demand will be met with new plants of some type, massive conservation and cogeneration. It's in this context that I'd like to share our view of supply and demand over the next several years.

NEPOOL has just completed its annual 16-year forecast of Capacity, Energy, Loads and Transmission which I submit for the record.

In our so-called CELT report, NEPOOL utilities forecast average peak summer load growth of approximately 2.2 percent a year over the 1988-2004 period. If I might for a moment anticipate the type of criticism that utility forecasts usually attract - namely, that they're too high - I'll assure the Committee that NEPOOL forecasts are traditionally conservative.

For instance, when the most robust period of New England's economic recovery began in 1984, NEPOOL was forecasting average annual growth of only 2.05 percent for the 16 years starting that year. Actual load growth during 1984-88 period alone averaged 4-5 percent a year.

While NEPOOL's forecasts have tended to be on the low side, there is probably some ground for believing that rising interest rates and an already-full employment regional economy will tend to slow New England's economic expansion and make our 2.2 percent load forecast accurate.

As low as that number is, given recent history, our latest CELT report still shows a NEPOOL capacity deficit of 859 megawatts by 1995 - roughly the size of one of our smaller nuclear units.

That's the good news. It's the smallest deficit, postponed the longest, that we presently see as achievable. On the other side of the load numbers are capacity and conservation assumptions necessary to not only limit the deficit to 859 megawatts, but to hold it off a full six years.

The capacity deficit I cited above is possible only under a set of certain "if's." The failure of any of them to materialize only brings on bigger deficits sooner.

- If the 1500-megawatt Hydro-Quebec Phase II transmission line comes on line as scheduled next year for availability during the 1991 summer peak; and,

- If the region's cogeneration capacity rises 65 percent to reach the 1861 megawatt-level forecast by NEPOOL for 1995; and,

- If the Pilgrim nuclear power plant returns to full service for this summer's peak; and,

- o If Seabrook is available for 1990's summer peak; and,

- o If savings from our total demand-side management and conservation programs are able to rise 16 percent to reach the 1759 megawatt-level forecast by NEPOOL for 1995.

It is only from meeting all these conditions that the capacity deficit for 1995 is limited to 895 megawatts. Again, that's if the 2.2 percent average annual load growth forecasted for whole 16 years holds from now to 1995

It would take too much of the Committee's time to show each deficit scenario possible by stripping away any one of the "if's" or their different combinations. The most sobering situation, though, would arise from neither Pilgrim nor Seabrook becoming available as scheduled.

If that were the case, then capacity deficits would start this summer at 592 megawatts, decline to 235 megawatts in 1992 as a result of Hydro-Quebec Phase II's coming on line, then balloon to 2679 megawatts by 1995. It's a simple lesson for those of us in the NEPOOL system: strip away any key capacity assumption and utility managers face an even more difficult supply and demand situation.

The same is true for conservation efforts that are anything less aggressive and massive.

Pilgrim, I'm happy to say, may very well return to full power service this summer under a phased-restart process approved by the Nuclear Regulatory Commission late last year. The NRC has already given Boston Edison permission to take the reactor to 25 percent power.

The other "if's", while not as daunting as they seemed even a year ago, are nonetheless full of policy implications that I'm certain the Committee will see as extending beyond New England's energy future to encompass the security of the whole nation's electricity supply.

I'll start with Seabrook. As you know, construction of Seabrook was completed over two and half years ago. It's ready to go and prospects for commercial operation are brighter now than at any other time since Massachusetts announced in September 1986 that it would not participate in emergency planning for the six Massachusetts towns that lie within the plant's 10-mile emergency planning zone.

For example, last November, then-President Reagan directed the Federal Emergency Management Agency to use federal resources, including the federal police power, if necessary, to compensate for inadequacies in utility-drafted emergency plans that arise from the refusal of State and local governments to participate.

Also late last year, the NRC's Atomic Safety & Licensing Board approved New Hampshire-sponsored emergency plans for that state's 17 communities that lie within the plant's 10-mile zone. The most exhaustive public hearings process I've ever seen preceded that very welcome decision.

We're now on the last track in obtaining our full power license: the Atomic Safety & Licensing Board hearings that started on March 21 in Boston to determine the adequacy of the utility plan we submitted for the six Massachusetts communities. Encouraging in this final phase is the fact that FEMA has approved our utility plan and the NRC itself has asked its licensing board to render a decision on its adequacy not later than September 30 of this year.

For the record, I'd like to repeat something that many members of the Committee already know: all the delay in Seabrook's operation since the fall of 1986 is attributable to its owners having to prepare and submit their own emergency plan to compensate for Massachusetts' absence. That plan has had to be evaluated, tested and, now, finally litigated.

By the way, should Seabrook be the only "if" that doesn't materialize to meet NEPOOL's 2.2 percent average annual load growth projection, the region's capacity deficit for 1995 is a whopping 2009 megawatts!

Let me offer a few other observations about Seabrook. And in this regard, I speak only for the joint owners of the project.

First, as much as the situation has improved since the fall of 1986, the emergency planning controversy surrounding the plant has been costing millions of dollars a month. It has absorbed the managerial and financial resources of its owners in a way none of us could have imagined when the project was first conceived nearly 20 years ago.

If we had known then that subsequent changes in law and regulatory requirements could allow one state - in which the plant isn't even located - to put a safe, needed and completed project at risk simply by walking away from emergency planning, then we'd never have undertaken it.

Seabrook and Shoreham stand today as perhaps the single greatest impediment to further reliance on nuclear energy in the United States. No other chief executive officer I know will ever even consider building another one - even under a so-called one-step licensing process - unless our plant first becomes a model of how the emergency planning hurdle is overcome.

In short, the licensing of Seabrook will finally demonstrate that it is the Federal government which is in charge of this country's nuclear enterprise. And unless it is in charge, there is no nuclear option.

One of NEPOOL's other capacity assumptions is the availability of the Hydro-Quebec Phase II transmission line in the summer of 1991. This project is moving along well, though I'm relieved to tell the Committee that its 1500 megawatts are under a firm contract and not for surplus power as is the case in the Hydro-Quebec Phase I contracts.

Hydro-Quebec just informed us that starting this September 1, they will not have any available surplus for at least a year to sell us over the Phase I transmission system. Higher than expected demand and low reservoirs have depleted the Hydro-Quebec surplus.

This brings to mind the fact that the difference between what is "surplus" power and what is "firm" power resides with the domestic needs of the seller. Hydro-Quebec's own needs in January 1988 forced the utility to temporarily curtail firm sales to NEPOOL during an especially demanding load on our system.

Mr. Chairman, I hope nothing I say here is taken as criticism of our friends across the border. Our purchases of Hydro-Quebec surpluses have allowed NEPOOL to temporarily displace some of the 35 percent of our capacity that is oil-fired.

The question that we in New England have to grapple with among ourselves is the extent to which we want to rely on foreign-source electricity. As much as we welcome every bit of energy we're able to buy, I'm personally not sure we shouldn't be producing it ourselves.

The last capacity assumption supporting the load growth NEPOOL presently projects is cogeneration. I mentioned earlier that it's forecasted to rise by 733 megawatts to reach 1861 megawatts by 1995.

Suffice to say, that's quite a jump. In fact, putting Seabrook aside reveals that nearly all of our region's domestic capacity growth over the next six years is going to come from non-utility sources.

There is no question that New England needs electricity from cogenerators. Many of us wish that even more will be available than is presently forecasted.

But Mr. Chairman, I personally have some difficulty with the idea of third-party cogenerators that enter our system unburdened by the obligation to serve and accountable only to the operator's profit potential at a given time. I'll stress again that this is a personal opinion.

I think that about covers what we see as the electric power situation in New England. It's been rough, and its going to be a lot rougher than it has to be if our capacity schedules - especially for Seabrook - are not met. Extreme weather conditions in either winter or summer could also strain us to an incredible degree.

No matter what, I'll repeat again that somehow, at some price and at some level of reliability, we'll meet the load. It is our obligation to do so.

I'd like to close by presuming to make some policy recommendations. These strike me as minimum measures necessary for us to carry on our business in a predictable fashion over the longer term.

With regard to nuclear power, both political and financial changes need to be made.

The political side can be addressed by recognizing that any plan for legislating licensing reform must contain provisions in which Congress resolves the emergency planning controversy in the Federal Government's favor. I might suggest that Congress consider reinstating the NRC's now-expired authority to grant Temporary Operating Licenses.

In fact, the Commission should be obligated to grant a TOL for a facility once the basic feasibility of adequate off-site planning has been established and once a licensing proceeding reaches the point where off-site contentions are the only issues to be litigated.

On the financial side, companies in NEPOOL and throughout the United States need a far greater degree of planning certainty than the recent wave of prudence aduit reviews driving write downs has made available. Some companies, as the Committee knows, have gone to the financial brink trying to recover their investments in nuclear facilities when public utility commissions try to examine the prudency of decisions made in earlier times and under different circumstances.

I don't know exactly how greater certainty could be built into the system, but Congress may want to consider ways in which FERC's 50 percent Construction Work In Progress rule could be encouraged, at a minimum, for adoption at the state regulatory level. Again, this is just one thought. We're only now seeing a consensus on the problem, and I'm sure it will be a long time before public opinion and political leadership coalesce around realistic solutions.

My suggestions here are certainly limited. They do, though, go to the heart of concerns my colleagues and I share about meeting load in our region at prices and reliability levels that people have every right to expect. Also, we're looking beyond the next several years and into the next century for fueling the dynamic economy that most people associate with New England.

The lines of supply and demand have crossed in our region, Mr. Chairman. In the short term we'll meet our obligation by producing, buying and conserving every last available kilowatt hour we can. Beyond that, the politics of nuclear energy and environmental balance must simply be resolved.

Thank you.

NEPOOL FORECAST REPORT

OF

CAPACITY, ENERGY, LOADS AND TRANSMISSION

1989-2004

APRIL 1, 1989

NEPOOL NEPLAN

April 1, 1989

NEPOOL Policy Planning Committee

Gentlemen:

RE: 1989 CELT REPORT

Attached is the April 1, 1989 issue of the "NEPOOL Forecast Report of Capacity, Energy, Loads and Transmission - 1989-2004" (CELT). It is intended to fulfill in one volume the reporting requirements of DOE, NERC Reliability Assessment Subcommittee, NPCC, EEI, EFSC (Mass.), and NEPOOL, as well as provide a foundation for resource planning.

The CELT Report provides data for NEPOOL and not total New England. Included in the Section I summaries, however, are the Total New England Capacity and Total New England Load for reference purposes. Also included in the Section I summaries are line items for non-utility generation capacity that is claimed for capability and line items for demand side management programs (including non-OP4 interruptible contracts, peak load management, and conservation on peak) and non-utility generation netted with load (i.e., not claimed for capability).

The capacity values reflected in the Section I summaries include only committed supply plans. Utility and non-utility generation facilities that are planned, but not licensed or under construction, are reported in Section IV and Appendix C respectively as proposed additions, but are not counted toward capability. The demand side management programs reflected in the Section I summaries represent company expectations.

It should be emphasized that the data contained in this forecast report does not, by itself, constitute a "plan", but rather provides a starting point for resource planning. For example, the unadjusted NEPOOL load forecast can be characterized as having a "50/50" probability of occurring. Higher or lower than forecast load growth (or peak load in any given year) continues to be a possibility with important implications for future power system reliability and/or economics. In addition, much uncertainty exists with regard to the timing (e.g., NEPLAN estimates that Seabrook 1 will be in-service by January 1, 1990) and/or the operating characteristics (e.g., availability, dispatchability, etc.) of both utility and non-utility generation as well as utility demand side management program impacts. For these and other reasons, there is a continued emphasis on quantification of the uncertainty surrounding the adequacy of projected resources as opposed to emphasis on a single forecast or plan.

As a final note, on or about June 1, 1989, a companion report regarding an assessment of NEPOOL resource adequacy for the forecast period will be issued.

Sincerely,

Richard J. Bolbrock

Richard J. Bolbrock

RJB/jl
Attachment
cc: NEPOOL Executive Committee
and Alternates

New England Power Planning 174 Brush Hill Avenue/P.O. Box 2010/West Springfield, MA 01090/(413) 787-9000

NEPOOL FORECAST REPORT OF CAPACITY, ENERGY, LOADS AND TRANSMISSION 1989-2004

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SECTION I

SUMMER SUMMARY

NEPOOL AND NEW ENGLAND SYSTEM AUGUST CAPABILITIES AND PEAK LOAD FORECAST (MW) - 1988-2004

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
NEW ENGLAND																	
TOTAL CAPACITY	22992	24147	25892	27685	27065	26764	26475	26432	26432	26412	26372	26333	26196	24896	24896	24847	24847
ADJUSTED LOAD	19491	20102	20404	20846	21288	21751	22259	22803	23319	23786	24235	24808	25465	25893	26335	26800	27395
NEPOOL																	
1. UNADJUSTED LOAD	NA	20766	21337	21961	22561	23207	23862	24540	25187	25746	26274	26966	27739	28292	28805	29415	30088
2. DEMAND SIDE MANAGEMENT PROGRAMS																	
2.1 NON-OP4 INT. CONTRACTS	NA	111	119	118	113	115	118	119	121	123	120	123	132	151	163	180	198
2.2 PEAK LOAD MANAGEMENT	NA	315	405	499	564	639	685	728	767	802	833	875	908	939	936	1006	1051
2.3 CONSERVATION ON PEAK	NA	240	361	438	527	623	713	797	880	932	979	1048	1116	1185	1245	1296	1308
2.4 LOSS ADJUSTMENT (I)	NA	47	62	74	85	97	107	115	124	129	135	142	151	159	164	173	178
TOTAL	NA	713	947	1129	1289	1474	1823	1759	1892	1986	2067	2188	2307	2434	2508	2655	2735
3. NON-UTILITY GEN. NETTED W/LOAD	48	53	90	92	92	92	92	92	92	92	92	92	92	92	92	92	92
4. ADJUSTED LOAD (II) (III)	19400	20000	20300	20740	21180	21641	22147	22689	23203	23668	24115	24686	25340	25766	26205	26668	27261
5. CAPACITY (IV)																	
5.1 UTILITY GENERATION	20983	21790	22943	23193	23021	22718	22605	22605	22605	22586	22546	22507	22370	22337	22337	22288	22288
5.2 NON-UTILITY GENERATION	843	1128	1671	1823	1860	1860	1861	1861	1861	1861	1861	1861	1861	1861	1861	1861	1861
5.3 NET OF PURCHASE & SALES	1097	1160	1209	2601	2120	2122	1945	1902	1902	1902	1902	1902	1902	652	652	652	652
TOTAL (V)	22923	24078	25823	27616	27001	26700	26411	26368	26368	26348	26308	26269	26132	24849	24849	24800	24800

KEY:

2 = 2.1 + 2.2 + 2.3 + 2.4
4 = 1 - 2 - 3
5 = 5.1 + 5.2 + 5.3

FOOTNOTES:

(I) REDUCTION IN LINE LOSSES ASSOCIATED WITH DSM PROGRAMS.
(II) THE 1988 PEAK LOAD SHOWN REFLECTS WEATHER NORMALIZATION. PRIOR TO WEATHER NORMALIZATION, THE RECONSTITUTED 1988 NEPOOL SUMMER PEAK OF 20240 MW OCCURRED ON 8/12/88 AT 1400 HOURS.
(III) THE ACTUAL SUMMER PEAK METERED LOAD WAS 19525 MW ON 8/11/88 AT 1400 HOURS AND INCLUDED LOAD REQUIREMENTS OF UTILITIES SERVED BY NEPOOL PARTICIPANTS. SEE PAGE 7 FOR ACTUAL AND ESTIMATED PEAKS AND ENERGIES.
(IV) CAPABILITIES INCLUDE EXISTING CAPACITY PLUS THE CHANGES SHOWN ON PAGE 4.
(V) MAY NOT EQUAL SUM DUE TO ROUNDING.
NA NOT AVAILABLE

SECTION I

WINTER SUMMARY

NEPOOL AND NEW ENGLAND SYSTEM JANUARY CAPABILITIES AND PEAK LOAD FORECAST (MW) - 1989 - 2005

	88/89	89/90	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05
NEW ENGLAND																	
TOTAL CAPACITY	24308	26371	27489	26870	26743	26306	26178	26185	26185	26112	26059	25915	25597	25580	25531	25535	25535
ADJUSTED LOAD	20096	20627	21129	21302	21484	21659	22108	22530	22944	23358	23949	24548	24954	25346	25843	26410	27036
NEPOOL																	
1. UNADJUSTED LOAD	NA	21444	22179	22513	22868	23487	23765	24307	24802	25277	25907	26606	27135	27632	28225	28880	29542
2. DEMAND SIDE MANAGEMENT PROGRAMS																	
2.1 NON-OP4 INT. CONTRACTS	NA	134	157	156	152	156	157	158	160	157	156	171	188	204	226	248	268
2.2 PEAK LOAD MANAGEMENT	NA	341	402	463	525	562	594	627	651	671	703	728	763	784	810	823	839
2.3 CONSERVATION ON PEAK	NA	354	456	549	655	751	840	922	974	1016	1024	1080	1145	1210	1255	1303	1305
2.4 LOSS ADJUSTMENT (I)	NA	58	71	82	93	103	112	119	125	129	132	139	147	154	159	167	168
TOTAL	NA	887	1086	1250	1425	1572	1703	1826	1910	1973	2015	2118	2243	2352	2450	2541	2580
3. NON-UTILITY GEN. NETTED W/LOAD	53	57	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93
4. ADJUSTED LOAD (II) (III)	19880	20500	21000	21170	21350	21822	21969	22388	22799	23211	23799	24395	24799	25187	25682	26246	26869
5. CAPACITY (IV)																	
5.1 UTILITY GENERATION	21748	23682	23962	23744	23621	23280	23280	23280	23280	23207	23155	23010	22967	22967	22919	22919	22919
5.2 NON-UTILITY GENERATION	1019	1468	1832	1911	1911	1912	1912	1912	1912	1912	1912	1912	1912	1912	1912	1912	1912
5.3 NET OF PURCHASES & SALES	1471	1153	1626	1146	1148	1050	922	929	929	929	929	929	654	654	654	658	658
TOTAL (V)	24238	26302	27420	26801	26679	26242	26114	26121	26121	26048	25995	25851	25533	25533	25484	25488	25488

KEY:

2 = 2.1 + 2.2 + 2.3 + 2.4
4 = 1 - 2 - 3
5 = 5.1 + 5.2 + 5.3

FOOTNOTES:

(I) REDUCTION IN LINE LOSSES ASSOCIATED WITH DSM PROGRAMS

(II) THE 1988 PEAK LOAD SHOWN REFLECTS WEATHER NORMALIZATION. PRIOR TO WEATHER NORMALIZATION, THE RECONSTITUTED 88/89 NEPOOL WINTER PEAK OF 20072 MW OCCURRED ON 1/4/89 AT 1800 HOURS.

(III) THE ACTUAL WINTER PEAK METERED LOAD OF 19724 MW OCCURRED ON 1/4/89 AT 1800 HOURS AND INCLUDED THE LOAD REQUIREMENTS OF UTILITIES SERVED BY NEPOOL PARTICIPANTS. SEE PAGE 7 FOR ACTUAL AND ESTIMATED PEAKS AND ENERGIES.

(IV) CAPABILITIES INCLUDE EXISTING CAPACITY PLUS CHANGES SHOWN ON PAGE 6.

(V) MAY NOT EQUAL SUM DUE TO ROUNDING.

NA NOT AVAILABLE

SECTION I

SUMMARY - NEPOOL AND NEW ENGLAND SYSTEM CAPABILITIES - AUGUST 1988 - 2004

NEPOOL CAPACITY BY UNIT TYPE (MW)

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
NUCLEAR	4737	5359	6509	6509	6509	6509	6509	6509	6509	6509	6509	6509	6509	6509	6509	6509	6509
COAL-STEAM	2751	2760	2760	2760	2760	2760	2760	2760	2760	2760	2760	2760	2639	2639	2639	2590	2590
WOOD-STEAM	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
OIL-STEAM	8084	8116	8116	8116	8116	7812	7700	7700	7700	7700	7700	7700	7700	7700	7700	7700	7700
OIL-COMBUSTION TURBINE	938	1001	1001	1001	829	829	829	829	829	810	770	753	737	704	704	704	704
OIL-COMBINED CYCLE	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
OIL-INTERNAL COMBUSTION	215	213	213	213	213	213	213	213	213	213	213	210	210	210	210	210	210
GAS-STEAM	597	597	597	597	597	597	597	597	597	597	597	597	597	597	597	597	597
GAS-COMBUSTION TURBINE	153	148	148	148	148	148	148	148	148	148	148	129	129	129	129	129	129
GAS-COMBINED CYCLE	282	292	292	517	517	517	517	517	517	517	517	517	517	517	517	517	517
GAS-INTERNAL COMBUSTION	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
MEDIAN HYDRO	1382	1389	1392	1417	1417	1417	1417	1417	1417	1417	1417	1417	1417	1417	1417	1417	1417
PUMPED STORAGE	1594	1676	1676	1676	1676	1676	1676	1676	1676	1676	1676	1676	1676	1676	1676	1676	1676
NON-UTILITY HYDRO (1)	186	228	228	233	238	238	238	238	238	238	238	238	238	238	238	238	238
NON-UTILITY THERMAL (1)	657	900	1442	1590	1622	1622	1623	1623	1623	1623	1623	1623	1623	1623	1623	1623	1623
NET OF PURCHASES AND SALES (2)	1097	1160	1209	2601	2120	2122	1945	1902	1902	1902	1902	1902	1902	652	652	652	652
TOTAL NEPOOL CAPACITY (3) (4)	22923	24078	25813	27616	27001	26700	26411	26368	26360	26348	26308	26269	26132	24849	24849	24800	24800
NEPOOL DEACTIVATED UNITS (5)	318	250	250	250	250	250	347	347	347	347	347	347	347	347	347	347	347

FOOTNOTES:

(1) NON-UTILITY GENERATION DETAILS FOR COMMITTED CAPACITY APPEAR IN APPENDIX B.
(2) PURCHASES AND SALES ARE WITH NON-NEPOOL UTILITIES.
(3) MAY NOT EQUAL SUM DUE TO ROUNDING.
(4) CAPABILITIES INCLUDE EXISTING CAPACITY PLUS THE CHANGES SHOWN ON PAGE 4.
(5) DEACTIVATED UNITS ARE NOT INCLUDED IN CAPACITY. THEIR DETAILS ARE LISTED ON PAGE 41.

SECTION I

SUMMARY - NEPOOL GENERATION ADDITIONS, RERATINGS AND RETIREMENTS - SUMMER

- AUGUST CAPABILITIES -

-MW-

		1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
EXISTING CAPABILITY	(1)	22923	24078	25823	27616	27001	26700	26411	26368	26368	26348	26308	26269	26132	24849	24849	24800
DEACTIVATED UNITS							-97										
RETIREMENTS					-172	-303	-16				-40	-39	-137	-33		-49	
RERATINGS		669								-20							
PURCHASES AND SALES	(2)	63	49	1391	-480	2	-177	-43						-1250			
NON-UTILITY GENERATION	(3)	285	543	152	37		1										
RETURN TO SERVICE		138															
NET CAPABILITY (ACTIVE)		24078	24670	27366	27001	26700	26411	26368	26368	26348	26308	26269	26132	24849	24849	24800	24800
COMPANY AUTHORIZED SMALL UNITS																	
HIGHGATE FALLS	NY		3														
MONTY	NY			25													
LARGE INDEPENDENT POWER PRODUCERS																	
OCEAN STATE 1				225													
NEPOOL PLANNED UNITS																	
SEABROOK 1			1150														
TOTAL NEPOOL CAPABILITY	(4)	24078	25823	27516	27001	26700	26411	26368	26368	26348	26308	26269	26132	24849	24849	24800	24800

(1) 1989 EXISTING CAPABILITY AS OF 8/1/88

(2) PURCHASES AND SALES ARE WITH NON-NEPOOL UTILITIES.

(3) ANNUAL INCREASES IN NON-UTILITY GENERATION CLAIMED FOR CAPABILITY.

(4) CAPABILITIES INCLUDE FUTURE FACILITIES AND PURCHASES WITH STATUS CODES T,U,V,* BUT NOT DEACTIVATED UNITS.

April 1, 1989

SECTION I

SUMMARY - NEPOOL AND NEW ENGLAND SYSTEM CAPABILITIES - JANUARY 1989 - 2005

NEPOOL CAPACITY BY UNIT TYPE (MW)

	88/89	89/90	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05
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NUCLEAR	4819	6639	6639	6639	6639	6639	6639	6639	6639	6639	6639	6639	6639	6639	6639	6639	6639
COAL-STEAM	2778	2778	2778	2778	2778	2778	2778	2778	2778	2778	2778	2654	2654	2654	2605	2605	2605
WOOD-STEAM	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
OIL-STEAM	8841	8841	8841	8841	8718	8377	8377	8377	8377	8377	8377	8377	8377	8377	8377	8377	8377
OIL-COMBUSTION TURBINE	1474	1491	1491	1273	1273	1273	1273	1273	1273	1199	1150	1130	1087	1087	1087	1087	1087
OIL-COMBINED CYCLE	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540
OIL-INTERNAL COMBUSTION	236	236	236	236	236	236	236	236	236	236	233	233	233	233	233	233	233
GAS-STEAM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GAS-COMBUSTION TURBINE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GAS-COMBINED CYCLE	0	0	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250
GAS-INTERNAL COMBUSTION	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
MEDIAN HYDRO	1383	1398	1428	1428	1428	1428	1428	1428	1428	1428	1428	1428	1428	1428	1428	1428	1428
PUMPED STORAGE	1617	1697	1697	1697	1697	1697	1697	1697	1697	1697	1697	1697	1697	1697	1697	1697	1697
NON-UTILITY HYDRO (1)	207	247	249	258	258	258	258	258	258	258	258	258	258	258	258	258	258
NON-UTILITY THERMAL (1)	812	1220	1582	1652	1652	1653	1653	1653	1653	1653	1653	1653	1653	1653	1653	1653	1653
NET OF PURCHASES AND SALES (2)	1471	1153	1626	1146	1148	1050	922	929	929	929	929	929	654	654	654	658	658
TOTAL NEPOOL CAPACITY (3) (4)	24239	26302	27420	26801	26679	26242	26114	26121	26121	26048	25995	25851	25533	25533	25484	25488	25488
NEPOOL DEACTIVATED UNITS (5)	255	255	255	255	255	350	350	350	350	350	350	350	350	350	350	350	350

(1) NON-UTILITY GENERATION DETAILS FOR COMMITTED CAPACITY APPEAR IN APPENDIX B.
(2) PURCHASES AND SALES ARE WITH NON-NEPOOL UTILITIES.
(3) MAY NOT EQUAL SUM DUE TO ROUNDING.
(4) CAPABILITIES INCLUDE EXISTING CAPACITY AND THE CHANGES SHOWN ON PAGE 6.
(5) DEACTIVATED UNITS ARE NOT INCLUDED IN CAPACITY. THEIR DETAILS ARE LISTED ON PAGE 41.

SECTION I

SUMMARY - NEPOOL GENERATION ADDITIONS, RERATINGS AND RETIREMENTS - WINTER

- JANUARY CAPABILITIES -

-MW-

		89/90	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05
EXISTING CAPABILITY	(1)	24239	26302	27420	26801	26679	26242	26114	26121	26121	26048	25995	25851	25533	25533	25484	25488
DEACTIVATED UNITS						-97											
RETIREMENTS				-219	-123	-243				-46	-53	-144	-43		-49		
RERATINGS		765								-27							
PURCHASES AND SALES	(2)	-318	473	-479	1	-98	-128	7					-275			4	
NON-UTILITY GENERATION	(3)	448	364	79		1											
RETURN TO SERVICE		18															
NET CAPABILITY (ACTIVE)		25152	27139	26801	26679	26242	26114	26121	26121	26048	25995	25851	25533	25533	25484	25488	25488
COMPANY AUTHORIZED SMALL UNITS																	
HIGHGATE FALLS NY			6														
MONTY NY			25														
LARGE INDEPENDENT POWER PRODUCERS																	
OCEAN STATE 1			250														
NEPOOL PLANNED UNITS																	
SEABROOK 1		1150															
TOTAL NEPOOL CAPABILITY	(4)	26302	27420	26801	26679	26242	26114	26121	26121	26048	25995	25851	25533	25533	25484	25488	25488

(1) 89/90 EXISTING CAPABILITY AS OF 1/1/89.
(2) PURCHASES AND SALES ARE WITH NON-NEPOOL UTILITIES.
(3) ANNUAL INCREASES IN "COMMITTED" NON-UTILITY GENERATION USED IN CAPABILITY FIGURES.
(4) CAPABILITIES INCLUDE FUTURE FACILITIES AND PURCHASES WITH STATUS CODES T,U,V,* BUT NOT DEACTIVATED UNITS.

April 1, 1989

SECTION I
NEPOOL ESTIMATED ENERGY & PEAK DEMAND FOR 1989-2004 & ACTUAL 1988

	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
ACTUAL 1988 PEAK MW	19309	17120	16910	14946	15325	18229	18735	19525	15201	15620	16786	19700
NET ENERGY GWH	10330	9341	9418	8286	8269	8694	9552	10149	8195	8737	8827	10286
1989 PEAK MW	A19724	A18586	P18223	17200	17400	18500	20000	20000	18200	16900	18600	19700
NET ZNERGY GWH	A10275	A 9409	9730	8590	8760	8930	9300	9630	8730	9170	9420	10350
1990 PEAK MW	20500	19400	18600	17600	17700	18800	20300	20300	18500	17200	19500	20700
NET ENERGY GWH	10960	9810	9940	8690	8960	9020	9610	9840	8830	9480	9630	10390

1988-1996	1988	1989	1990	1991	1992	1993	1994	1995	1996
SUMMER PEAK-MW	A 19525	20000	20300	20740	21180	21641	22147	22689	23203
WINTER PEAK-MW(1)	A 19724	20500	21000	21170	21350	21522	21969	22388	22799
NET ANNUAL ENERGY-GWH	110084	112940	115162	117607	119741	121911	124757	127727	130382

1997-2004	1997	1998	1999	2000	2001	2002	2003	2004	CAGR 1989-2004(2)
SUMMER PEAK-MW	23668	24115	24686	25340	25766	26205	26668	27261	2.09
WINTER PEAK-MW(1)	23211	23799	24395	24799	25187	25682	26246	26869	1.82
NET ANNUAL ENERGY-GWH	132766	135044	138407	141892	144485	146820	149708	153009	2.04

A-Actual
P-Preliminary
(1)Winter beginning in December of the year shown.
(2)Compound annual growth rate(%)

SECTION II

1988 ADDITIONS AND RETIREMENTS TO NEPOOL CAPACITY

JANUARY 1988 THROUGH DECEMBER 1988

OPERATING COMPANY	STATION	TYPE	FUEL	CAPABILITY - MW SUMMER	CAPABILITY - MW WINTER	MONTH - YEAR
ADDITIONS						
PUBLIC SERVICE OF NEW HAMPSHIRE	WOLFEBORO DIESEL	IC	FO2	2.50	2.75	1/ 1/ 1988
NORTHEAST UTILITIES	DEVON 10	JE	JP	17.20	19.50	4/ 1/ 1988
RETIREMENTS						
NONE						

April 1, 1989

SECTION II

1988 RERATINGS OF EXISTING NEPOOL GENERATING CAPACITY

JANUARY 1988 THROUGH DECEMBER 1988

STATION	TYPE	FUEL	CHANGES IN MAX. CLAIMED MW SUMMER - WINTER		MAX. CLAIMED MW SUMMER - WINTER		MONTH - YEAR
VERMONT HYDRO	HY		0.00	0.05	110.08	111.47	2/ 1/ 1988
DEERFIELD 5	HY		0.00	2.03	13.99	13.99	3/ 1/ 1988
BRAYTON POINT DIESEL	IC	FO2	0.00	0.25	11.00	11.25	3/ 1/ 1988
WILDER	HY		0.00	1.00	39.92	40.92	3/ 1/ 1988
BRAYTON POINT 2	ST	COL	0.00	2.45	247.45	250.60	3/ 1/ 1988
COMERFORD	HY		0.00	1.01	161.92	161.34	3/ 1/ 1988
MOORE	HY		0.00	1.04	191.46	191.96	3/ 1/ 1988
BEAR SWAMP 1	PS		0.00	0.50	281.25	292.50	3/ 1/ 1988
SCHILLER 6	ST	COL	0.00	0.62	48.50	50.50	3/ 1/ 1988
DEVON 10	JE	JP	0.00	-0.30	17.20	19.20	3/ 1/ 1988
SALEM HARBOR 3	ST	COL	0.00	0.33	152.00	151.83	3/ 1/ 1988
VERMONT HYDRO	HY		0.00	0.20	110.08	111.67	3/ 1/ 1988
BEAR SWAMP 2	PS		0.00	0.50	281.25	292.50	3/ 1/ 1988
WHITE LAKE JET	JE	FO1	0.00	0.20	17.50	22.50	4/ 1/ 1988
DEVON 4	ST	FO6	0.00	-1.00	50.00	51.00	4/ 1/ 1988
VERMONT HYDRO	HY		0.57	0.00	110.65	111.67	4/ 1/ 1988
BRAYTON POINT 2	ST	COL	0.00	0.23	247.45	250.83	4/ 1/ 1988
BRAYTON POINT 4	ST	FO6	0.00	4.50	426.58	440.00	4/ 1/ 1988
SCHILLER 4	ST	COL	0.00	0.13	48.00	48.83	4/ 1/ 1988
MILLSTONE 3	NP	UR	0.00	6.65	1141.93	1156.00	4/ 1/ 1988
DEERFIELD 3	HY		0.00	-1.04	6.50	5.96	5/ 1/ 1988
MANCHESTER STREET 9	ST	FO6	0.00	-1.17	45.00	44.33	5/ 1/ 1988
PILGRIM 1	NB	UR	0.00	-670.00	0.00	0.00	5/ 1/ 1988
LOST NATION GT	GT	FO2	0.00	-0.80	16.10	20.40	5/ 1/ 1988
SCHILLER 3	ST	FO6	0.00	-17.20	26.29	11.00	5/ 1/ 1988
GARDNER FALLS	HY		0.00	0.10	3.40	3.40	5/ 1/ 1988
BRIDGEPORT HARBOR 3	ST	COL	0.00	10.00	375.00	385.00	5/ 1/ 1988
SMITH	HY		0.00	-0.05	15.85	16.50	5/ 1/ 1988
VERMONT HYDRO	HY		0.00	0.83	110.65	112.50	5/ 1/ 1988
BRAYTON POINT 3	ST	COL	0.00	-10.40	608.47	621.65	5/ 1/ 1988
ASCUTNEY GT	GT	FO2	0.00	0.25	10.05	14.70	5/ 1/ 1988
RUTLAND 5 GT	GT	FO2	0.00	-0.58	10.35	14.10	5/ 1/ 1988
HARRIMAN	HY		0.00	-0.02	41.99	39.96	5/ 1/ 1988
MERRIMACK JET 1	JE	FO1	0.00	-0.20	17.00	22.50	5/ 1/ 1988
MERRIMACK JET 2	JE	FO1	0.00	-0.50	19.40	23.30	5/ 1/ 1988
MERRIMACK STEAM 1	ST	COL	0.00	-0.78	119.73	123.17	5/ 1/ 1988
MEDWAY 3	JE	FO2	0.00	-2.80	45.70	60.00	5/ 1/ 1988
CHICOPEE RIVER	HY		1.50	1.71	11.60	11.81	5/ 1/ 1988

SECTION II

1988 RERATINGS OF EXISTING NEPOOL GENERATING CAPACITY

JANUARY 1988 THROUGH DECEMBER 1988

STATION	TYPE	FUEL	CHANGES IN MAX. CLAIMED MW SUMMER	CHANGES IN MAX. CLAIMED MW WINTER	MAX. CLAIMED MW SUMMER	MAX. CLAIMED MW WINTER	MONTH - YEAR
SALEM HARBOR 1	ST	COL	0.00	-1.00	82.50	84.00	5/ 1/ 1988
SALEM HARBOR 2	ST	COL	0.00	-3.00	79.83	80.00	5/ 1/ 1988
ROCKY RIVER	PS		0.00	3.40	31.00	32.40	5/ 1/ 1988
SOMERSET JET 1	JE	FO1	0.00	-1.30	19.10	22.30	5/ 1/ 1988
SCHILLER 5	ST	COL	0.00	-2.23	50.33	50.32	5/ 1/ 1988
BRAYTON POINT 1	ST	COL	0.00	-3.70	245.10	251.95	5/ 1/ 1988
SOMERSET STEAM 5	ST	COL	0.00	0.17	68.47	69.43	5/ 1/ 1988
COBBLE MOUNTAIN	HY		1.98	0.98	34.98	33.98	5/ 1/ 1988
FALLS VILLAGE STA.	HY		0.80	0.00	11.00	10.20	5/ 1/ 1988
SOMERSET STEAM 6	ST	COL	0.00	0.60	109.32	113.67	5/ 1/ 1988
EASTMAN FALLS	HY		0.00	-0.10	6.47	6.40	5/ 1/ 1988
PAWTUCKET 2	HY	WAT	0.00	0.04	1.19	1.24	5/ 1/ 1988
CABOT STATION	HY		9.25	0.00	53.00	53.00	5/ 1/ 1988
FIFE BROOK	HY		0.00	-1.49	9.45	8.45	5/ 1/ 1988
MANCHESTER STREET 10	ST	FO6	0.00	-3.67	45.67	46.33	5/ 1/ 1988
SOMERSET JET 2	JE	FO1	0.00	1.00	22.60	24.70	5/ 1/ 1988
MANCHESTER STREET 11	ST	FO6	0.00	-5.17	47.34	46.33	5/ 1/ 1988
ENGLISH 8	ST	FO6	0.00	-0.52	37.00	39.48	5/ 1/ 1988
SOUTH STREET STEAM	ST	FO6	0.00	-2.38	99.25	100.00	5/ 1/ 1988
BELLOWS FALLS	HY		0.08	-0.95	48.00	47.92	5/ 1/ 1988
NEWINGTON 1	ST	FO6	0.00	-3.20	406.63	424.83	5/ 1/ 1988
MASSACHUSETTS YANKEE	NP	UR	0.00	-2.01	172.59	173.49	5/ 1/ 1988
BLACKSTONE 3	ST	FO6	0.00	-0.15	0.00	2.75	5/ 1/ 1988
SCOTLAND	HY		0.25	0.10	2.15	2.20	5/ 1/ 1988
MYSTIC STEAM 4	ST	FO6	0.00	-2.08	142.00	139.92	5/ 1/ 1988
GARVINS	HY		0.00	-0.35	10.55	10.40	5/ 1/ 1988
MYSTIC STEAM 5	ST	FO6	0.00	-0.83	142.00	141.17	5/ 1/ 1988
SHEPAUG	HY		0.00	-0.40	43.00	42.50	5/ 1/ 1988
TAFTVILLE	HY		0.00	0.20	1.20	2.00	5/ 1/ 1988
L STREET JET	JE	FO2	0.00	-0.80	17.20	21.65	5/ 1/ 1988
HOLYOKE WATER	HY		0.12	0.55	42.40	41.55	5/ 1/ 1988
TURNERS FALLS	HY		0.35	0.20	6.25	6.25	5/ 1/ 1988
TORRINGTON TERMINAL	JE	JP	0.00	-0.20	17.20	21.80	5/ 1/ 1988
TUNNEL JET 10	JE	JP	0.00	-0.20	17.20	21.80	5/ 1/ 1988
SALEM HARBOR 4	ST	FO6	0.00	-3.50	446.17	442.33	5/ 1/ 1988
GORHAM	HY		0.00	-0.05	2.05	1.95	5/ 1/ 1988
FITCHBURG 7	GT	FO2	0.00	-0.42	20.25	26.58	5/ 1/ 1988

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SECTION II

1988 RERATINGS OF EXISTING NEPOOL GENERATING CAPACITY

JANUARY 1988 THROUGH DECEMBER 1988

STATION	TYPE	FUEL	CHANGES IN MAX. CLAIMED MW		MAX. CLAIMED MW		MONTH - YEAR
			SUMMER	WINTER	SUMMER	WINTER	
CONNECTICUT YANKEE	NP	UR	0.00	5.00	543.00	587.00	5/ 1/ 1988
TUNNEL HYDRO	HY		0.30	0.00	2.00	2.00	5/ 1/ 1988
STEVENSON	HY		0.74	0.20	29.44	28.90	5/ 1/ 1988
NEWINGTON 1	ST	FO6	14.54	0.00	421.17	424.83	6/ 1/ 1988
BRIDGEPORT HARBOR 3	ST	COL	10.00	0.00	385.00	385.00	6/ 1/ 1988
SOMERSET STEAM 5	ST	COL	5.04	3.58	73.51	73.01	6/ 1/ 1988
MILLSTONE 2	NP	UR	5.63	0.00	862.88	868.25	6/ 1/ 1988
VERMONT HYDRO	HY		0.20	0.00	110.85	112.50	6/ 1/ 1988
NEW BOSTON 1	ST	FO6	30.00	0.00	380.00	380.00	6/ 1/ 1988
SCHILLER 6	ST	COL	2.00	0.00	50.50	50.50	6/ 1/ 1988
DEVON 4	ST	FO6	0.00	1.00	50.00	52.00	7/ 1/ 1988
MERRIMACK STEAM 1	ST	COL	0.00	1.00	119.73	124.17	7/ 1/ 1988
CONNECTICUT YANKEE	NP	UR	22.00	0.00	565.00	587.00	7/ 1/ 1988
SOMERSET STEAM 5	ST	COL	-0.83	0.00	72.68	73.01	8/ 1/ 1988
WHITE LAKE JET	JE	FO1	2.20	1.80	19.70	24.30	8/ 1/ 1988
SCHILLER 5	ST	COL	0.34	0.00	50.67	50.32	8/ 1/ 1988
BRAYTON POINT 3	ST	COL	11.56	0.00	620.03	621.65	8/ 1/ 1988
MASON 3	ST	FO6	-3.75	-4.38	31.82	31.82	8/ 1/ 1988
MERRIMACK STEAM 1	ST	COL	1.10	0.00	120.83	124.17	8/ 1/ 1988
SCHILLER 4	ST	COL	0.50	0.00	48.50	48.83	8/ 1/ 1988
BRAYTON POINT 4	ST	FO6	1.42	0.00	428.00	440.00	9/ 1/ 1988
BRAYTON POINT 2	ST	COL	2.55	0.00	250.00	250.83	9/ 1/ 1988
MASON 4	ST	FO6	-3.66	-4.20	31.82	31.82	9/ 1/ 1988
BRAYTON POINT 1	ST	COL	0.90	0.00	246.00	251.95	9/ 1/ 1988
WHITE LAKE JET	JE	FO1	0.50	-1.80	20.20	22.50	10/ 1/ 1988
SALEM HARBOR 2	ST	COL	-0.16	0.00	79.67	80.00	10/ 1/ 1988
BEAR SWAMP 1	PS		1.00	0.00	282.25	292.50	10/ 1/ 1988
FIFE BROOK	HY		0.25	0.00	9.70	8.45	10/ 1/ 1988
DEERFIELD 4	HY		0.21	0.00	6.17	5.42	10/ 1/ 1988
MANCHESTER STREET 10	ST	FO6	-0.34	0.00	45.33	46.33	10/ 1/ 1988
MERRIMACK JET 2	JE	FO1	0.40	0.00	19.80	23.30	10/ 1/ 1988
BEAR SWAMP 2	PS		1.00	0.00	282.25	292.50	10/ 1/ 1988
MANCHESTER STREET 9	ST	FO6	-2.84	0.00	42.16	44.33	10/ 1/ 1988
SMITH	HY		0.65	0.00	16.50	16.50	10/ 1/ 1988
MERRIMACK STEAM 2	ST	COL	3.86	0.50	344.83	344.83	10/ 1/ 1988
WILDER	HY		0.54	0.00	40.46	40.92	10/ 1/ 1988

SECTION II

1988 RERATINGS OF EXISTING NEPOOL GENERATING CAPACITY

JANUARY 1988 THROUGH DECEMBER 1988

STATION	TYPE	FUEL	CHANGES IN MAX. CLAIMED MW SUMMER	CHANGES IN MAX. CLAIMED MW WINTER	MAX. CLAIMED MW SUMMER	MAX. CLAIMED MW WINTER	MONTH - YEAR
MANCHESTER STREET 11	ST	FO6	-1.34	0.00	46.00	46.33	10/ 1/ 1988
SOMERSET STEAM 6	ST	COL	1.16	0.00	110.48	113.67	11/ 1/ 1988
SOMERSET JET 1	JE	FO1	-4.60	0.00	14.50	22.30	11/ 1/ 1988
SOMERSET JET 2	JE	FO1	-1.95	0.00	20.65	24.70	11/ 1/ 1988
POTTER DIESEL 2	IC	FO2	-2.00	0.00	0.00	2.00	12/ 1/ 1988
MEDWAY 3	JE	FO2	-1.98	-1.20	43.72	58.80	12/ 1/ 1988
HARRIMAN	HY		-0.03	0.00	41.96	39.96	12/ 1/ 1988
MYSTIC STEAM 4	ST	FO6	-7.00	0.00	135.00	139.92	12/ 1/ 1988
MCINDOES	HY		-1.52	0.00	11.48	13.00	12/ 1/ 1988
MILLSTONE 1	NB	UR	-2.00	0.00	652.00	659.50	12/ 1/ 1988
CAPE GT 4+5	GT	FO2	-1.39	0.00	33.04	42.65	12/ 1/ 1988
VERMONT HYDRO	HY		-2.22	1.55	108.63	114.05	12/ 1/ 1988
L STREET JET	JE	FO2	0.10	0.00	17.30	21.65	12/ 1/ 1988
MYSTIC JET	JE	FO2	-0.65	0.00	10.00	15.00	12/ 1/ 1988
FRAMINGHAM 1	JE	FO2	-0.20	0.00	11.60	15.00	12/ 1/ 1988
FRAMINGHAM 2	JE	FO2	-0.50	0.00	12.00	15.00	12/ 1/ 1988
MERRIMACK JET 1	JE	FO1	0.00	2.20	17.00	24.70	12/ 1/ 1988
MILLSTONE 3	NP	UR	-4.93	0.00	1137.00	1156.00	12/ 1/ 1988
EDGAR JET 2	JE	FO2	-0.25	0.00	10.75	14.30	12/ 1/ 1988
DEERFIELD 2	HY		-0.54	0.00	6.46	6.50	12/ 1/ 1988
BELLOWS FALLS	HY		-0.08	0.00	47.92	47.92	12/ 1/ 1988
MERRIMACK JET 2	JE	FO1	0.00	0.90	19.80	24.20	12/ 1/ 1988
MAINE YANKEE	NP	UR	-41.18	0.00	803.82	855.00	12/ 1/ 1988
SCHILLER 3	ST	FO6	-26.29	14.48	0.00	25.48	12/ 1/ 1988
MASSACHUSETTS YANKEE	NP	UR	-0.67	0.00	171.92	173.49	12/ 1/ 1988
FRAMINGHAM 3	JE	FO2	-1.00	0.00	10.55	15.00	12/ 1/ 1988
EDGAR JET 1	JE	FO2	0.95	0.00	12.10	14.05	12/ 1/ 1988
FRONT STREET 1-3	IC	FO2	-0.48	0.00	7.77	8.25	12/ 1/ 1988
MEDWAY 1	JE	FO2	-7.00	0.00	35.90	60.60	12/ 1/ 1988
MEDWAY 2	JE	FO2	4.90	0.00	49.40	59.40	12/ 1/ 1988
JACKMAN	HY		-0.04	0.00	3.75	3.60	12/ 1/ 1988

SECTION III

NEPOOL'S EXISTING GENERATION CAPABILITY AS OF JANUARY 1, 1989

SYSTEM	STATION NAME AND NO.	LOCATION	UNIT TYPE	PRIMARY FUEL NET CAPABILITY-MW SUMMER	PRIMARY FUEL NET CAPABILITY-MW WINTER	PRIMARY FUEL FUEL TYPE	PRIMARY FUEL TRANSP. METHOD	ALTERNATE FUEL FUEL TYPE	ALTERNATE FUEL TRANSP. METHOD	NOTES
01	02	03	04	05	06	07	08	09	10	11
BANGOR HYDRO ELECTRIC COMPANY										
BHE	GRAHAM 3	23-019	ST	11.68	12.60	FO6	RR			
	GRAHAM 4	23-019	ST	17.65	18.15	FO6	RR			
	GRAHAM 5	23-019	ST	27.63	28.98	FO6	RR			
	BANGOR DIESELS	23-019	IC	19.85	21.21	FO2	TK			
	EASTPORT DIESELS	23-029	IC	1.80	2.00	FO2	TK			
	ELLSWORTH	23-009	HY	9.25	9.25					
	PENOBSCOT RIVER 1	23-019	HY	22.40	25.20					
	W. F. WYMAN 4	23-005	ST	51.21	51.60	FO6	WA			8.3333 PERCENT OF UNIT
	MAINE YANKEE	23-015	NP	55.46	58.99	UR	TK			6.8998 PERCENT OF UNIT
	NUG HYDRO - BHE	-	PH	22.50	26.50					
	NUG THERMAL - BHE	-	PF	61.89	61.89					
	OIL-STEAM			108.17	111.33					
	OIL-INTERNAL COMBUSTION			21.65	23.21					
	NUCLEAR			55.46	58.99					
	MEDIAN HYDRO			31.65	34.45					
	NON-UTILITY HYDRO			22.50	26.50					
	NON-UTILITY THERMAL			61.89	61.89					
	TOTAL CAPABILITY, ALL TYPES			301.32	316.38					
BOSTON EDISON COMPANY										
BECO	W. F. WYMAN 4	23-005	ST	36.18	36.46	FO6	WA			5.8881 PERCENT OF UNIT
	CANAL 1	25-001	ST	142.25	143.00	FO6	WA			25.0000 PERCENT OF UNIT
	MYSTIC STEAM 4	25-017	ST	135.00	139.92	FO6	PL			
	MYSTIC STEAM 5	25-017	ST	142.00	141.17	FO6	PL			
	MYSTIC STEAM 6	25-017	ST	141.24	145.00	FO6	PL			
	NEW BOSTON 1	25-025	ST	380.00	380.00	FO6	PL	GAS	PL	
	NEW BOSTON 2	25-025	ST	380.00	380.00	FO6	PL	GAS	PL	
	L STREET JET	25-025	JE	17.30	21.65	FO2	TK			
	MYSTIC JET	25-017	JE	10.00	15.00	FO2	TK			
	FRAMINGHAM 1	25-017	JE	11.60	15.00	FO2	TK			
	FRAMINGHAM 2	25-017	JE	12.00	15.00	FO2	TK			
	FRAMINGHAM 3	25-017	JE	10.55	15.00	FO2	TK			

NOTE: APPENDIX-A DEFINES CODES USED IN COLUMNS 1-11. APPENDIX-B LISTS INDIVIDUAL NON-UTILITY GENERATORS.

SECTION III

NEPOOL'S EXISTING GENERATION CAPABILITY AS OF JANUARY 1, 1989

SYSTEM	STATION NAME AND NO.	LOCATION	UNIT TYPE	PRIMARY FUEL: NET CAPABILITY-MW SUMMER	PRIMARY FUEL: NET CAPABILITY-MW WINTER	PRIMARY FUEL: FUEL TYPE	PRIMARY FUEL: TRANSP. METHOD	ALTERNATE FUEL: FUEL TYPE	ALTERNATE FUEL: TRANSP. METHOD	NOTES
01	02	03	04	05	06	07	08	09	10	11
BOSTON EDISON COMPANY (CONTINUED)										
	EDGAR JET 1	25-021	JE	12.10	14.05	FO2	TK			
	EDGAR JET 2	25-021	JE	10.75	14.30	FO2	TK			
	MEDWAY 1	25-021	JE	35.90	60.60	FO2	TK	GAS	PL	ON GAS DURING SUMMER
	MEDWAY 2	25-021	JE	49.40	59.40	FO2	TK	GAS	PL	ON GAS DURING SUMMER
	MEDWAY 3	25-021	JE	43.72	58.80	FO2	TK	GAS	PL	ON GAS DURING SUMMER
	PILGRIM 1	25-023	NB	0.00	0.00	UR	TK			74.2700 PERCENT OF UNIT
	MYSTIC STEAM 7	25-017	ST	592.00	592.00	FO6	PL	GAS	PL	ON GAS DURING SUMMER
	NUG HYDRO - BECO	-	PH	1.05	1.05					
	NUG THERMAL - BECO	-	PF	26.30	35.50					
	MASSACHUSETTS YANKEE	25-011	NP	16.33	16.48	UR	TK			9.5000 PERCENT OF UNIT
	CONNECTICUT YANKEE	09-007	NP	53.67	55.76	UR	TK			9.5000 PERCENT OF UNIT
	OIL-STEAM			1356.67	1957.55					
	GAS-STEAM			592.00	0.00					
	OIL-COMBUSTION TURBINE			84.30	288.80					
	GAS-COMBUSTION TURBINE			129.02	0.00					
	NUCLEAR			70.01	72.25					
	NON-UTILITY HYDRO			1.05	1.05					
	NON-UTILITY THERMAL			26.30	35.50					
	TOTAL CAPABILITY, ALL TYPES			2270.35	2366.15					
BRAINTREE ELECTRIC LIGHT DEPARTMENT										
BELD	POTTER DIESEL 1	25-021	IC	2.00	2.00	FO2	TK			
	POTTER DIESEL 2	25-021	IC	0.00	2.00	FO2	TK			
	POTTER CT	25-021	CT	51.48	67.06	FO2	TK			
	POTTER CW	25-021	CW	19.52	19.94					
	MAINE YANKEE	23-015	NP	3.25	3.45	UR	TK			0.4037 PERCENT OF UNIT
	VERMONT YANKEE	50-025	NB	1.73	1.81	UR	TK			0.3481 PERCENT OF UNIT
	OIL-INTERNAL COMBUSTION			2.00	4.00					
	OIL-COMBINED CYCLE			71.00	87.00					
	NUCLEAR			4.97	5.26					
	TOTAL CAPABILITY, ALL TYPES			77.97	96.26					

NOTE: APPENDIX-A DEFINES CODES USED IN COLUMNS 1-11. APPENDIX-B LISTS INDIVIDUAL NON-UTILITY GENERATORS.

SECTION III

NEPOOL'S EXISTING GENERATION CAPABILITY AS OF JANUARY 1, 1989

SYSTEM	STATION NAME AND NO.	LOCATION	UNIT TYPE	PRIMARY FUEL NET CAPABILITY-MW SUMMER	PRIMARY FUEL NET CAPABILITY-MW WINTER	PRIMARY FUEL FUEL TYPE	PRIMARY FUEL TRANSP. METHOD	ALTERNATE FUEL FUEL TYPE	ALTERNATE FUEL TRANSP. METHOD	NOTES
01	02	03	04	05	06	07	08	09	10	11
CENTRAL MAINE POWER COMPANY										
CMP	MASON 3	23-015	ST	32.00	32.00	FO6	WA			
	MASON 4	23-015	ST	32.00	32.00	FO6	WA			
	MASON 5	23-015	ST	33.00	32.00	FO6	WA			
	W. F. WYMAN 1	23-005	ST	53.50	53.50	FO6	WA			
	W. F. WYMAN 2	23-005	ST	53.50	53.50	FO6	WA			
	W. F. WYMAN 3	23-005	ST	115.85	115.85	FO6	WA			
	PEAKS IS 1,3	23-005	IC	1.45	1.50	FO2	TK			
	CAPE GT 4+5	23-005	GT	33.04	42.65	FO2	TK			
	NUG HYDRO - CMP	-	PH	55.23	55.38					
	NUG THERMAL - CMP	-	PF	136.72	146.09					
	CMP OTHER HYDRO	23-	HY	163.85	163.85					
	W. F. WYMAN 4	23-005	ST	363.51	366.32	FO6	WA			59.1547 PERCENT OF UNIT
	HARRIS	23-	HY	87.50	87.50					
	W. S. WYMAN	23-025	HY	80.00	80.00					
	MILLSTONE 3	09-011	NP	28.43	28.90	UR	TK			2.5000 PERCENT OF UNIT
	MAINE YANKEE	23-015	NP	301.08	320.25	UR	TK			37.4560 PERCENT OF UNIT
	VERMONT YANKEE	50-025	NB	17.81	18.67	UR	TK			3.5910 PERCENT OF UNIT
	MASSACHUSETTS YANKEE	25-011	NP	16.33	16.48	UR	TK			9.5000 PERCENT OF UNIT
	CONNECTICUT YANKEE	09-007	NP	33.90	35.22	UR	TK			6.0000 PERCENT OF UNIT
	OIL-STEAM			683.36	685.17					
	OIL-INTERNAL COMBUSTION			1.45	1.50					
	OIL-COMBUSTION TURBINE			33.04	42.65					
	NUCLEAR			397.55	419.52					
	MEDIAN HYDRO			331.35	331.35					
	NON-UTILITY HYDRO			55.23	55.38					
	NON-UTILITY THERMAL			136.72	146.09					
	TOTAL CAPABILITY, ALL TYPES			1669.34	1712.31					

NOTE: APPENDIX-A DEFINES CODES USED IN COLUMNS 1-11. APPENDIX-B LISTS INDIVIDUAL NON-UTILITY GENERATORS.

APRIL 1, 1989

SECTION III

NEPOOL'S EXISTING GENERATION CAPABILITY AS OF JANUARY 1, 1989

SYSTEM	STATION NAME AND NO.	LOCATION	UNIT TYPE	PRIMARY FUEL NET CAPABILITY-MW SUMMER	PRIMARY FUEL NET CAPABILITY-MW WINTER	PRIMARY FUEL FUEL TYPE	PRIMARY FUEL TRANSP. METHOD	ALTERNATE FUEL FUEL TYPE	ALTERNATE FUEL TRANSP. METHOD	NOTES
01	02	03	04	05	06	07	08	09	10	11
CHICOPEE LIGHT DEPARTMENT										
CMLP	MILLSTONE 3	09-011	NP	15.35	15.61	UR	TK			1.3500 PERCENT OF UNIT
	FRONT STREET 1-3	25-013	IC	7.77	8.25	FO2	TK			
	OIL-INTERNAL COMBUSTION			7.77	8.25					
	NUCLEAR			15.35	15.61					
	TOTAL CAPABILITY, ALL TYPES			23.12	23.86					
COMMONWEALTH ELECTRIC SYSTEM										
CES	W. F. WYMAN 4	23-005	ST	8.80	8.87	FO6	WA			1.4323 PERCENT OF UNIT
	KENDALL STEAM 1+2	25-017	ST	37.00	43.00	FO6	WA	GAS	PL	
	KENDALL STEAM 3	25-017	ST	26.00	29.00	FO6	WA	GAS	PL	
	BLACKSTONE 1	25-017	ST	13.50	16.00	FO6	TK	GAS	PL	
	BLACKSTONE 3	25-017	ST	0.00	2.75	FO6	TK	GAS	PL	
	BLACKSTONE 4	25-017	ST	2.00	2.60	FO6	TK	GAS	PL	
	CANAL 1	25-001	ST	142.25	143.00	FO6	WA			25.0000 PERCENT OF UNIT
	CANNON STREET 1	25-005	ST	25.00	25.40	FO6	WA	GAS	PL	
	CANNON STREET 2	25-005	ST	34.00	35.20	FO6	WA	GAS	PL	
	WEST TISBURY DSL 1+2	25-007	IC	5.50	5.50	FO2	TK			
	OAK BLUFF DSLS 1-3	25-007	IC	8.25	8.25	FO2	TK			
	KENDALL JET 1	25-017	JE	19.00	24.00	FO1	TK			
	KENDALL JET 2	25-017	JE	19.00	24.00	FO1	TK			
	CANAL 2	25-001	ST	290.00	292.00	FO6	WA			50.0000 PERCENT OF UNIT
	NUG HYDRO - CES	-	PH	22.70	24.39					
	NUG THERMAL - CES	-	PF	72.98	72.98					
	PILGRIM 1	25-023	NB	0.00	0.00	UR	TK			11.0000 PERCENT OF UNIT
	MAINE YANKEE	23-015	NP	28.87	30.71	UR	TK			3.5921 PERCENT OF UNIT
	VERMONT YANKEE	50-025	NB	11.16	11.70	UR	TK			2.2500 PERCENT OF UNIT
	MASSACHUSETTS YANKEE	25-011	NP	7.74	7.81	UR	TK			4.5000 PERCENT OF UNIT
	CONNECTICUT YANKEE	09-007	NP	25.43	26.42	UR	TK			4.5000 PERCENT OF UNIT

NOTE: APPENDIX-A DEFINES CODES USED IN COLUMNS 1-11. APPENDIX-B LISTS INDIVIDUAL NON-UTILITY GENERATORS.

APRIL 1, 1989

SECTION III

NEPOOL'S EXISTING GENERATION CAPABILITY AS OF JANUARY 1, 1989

SYSTEM 01	STATION NAME AND NO. 02	LOCATION 03	UNIT TYPE 04	PRIMARY FUEL: NET CAPABILITY-MW SUMMER 05	PRIMARY FUEL: NET CAPABILITY-MW WINTER 06	PRIMARY FUEL: FUEL TYPE 07	PRIMARY FUEL: TRANSP. METHOD 08	ALTERNATE FUEL: FUEL TYPE 09	ALTERNATE FUEL: TRANSP. METHOD 10	NOTES 11
COMMONWEALTH ELECTRIC SYSTEM (CONTINUED)										
	OIL-STEAM			578.55	597.82					
	OIL-INTERNAL COMBUSTION			13.75	13.75					
	OIL-COMBUSTION TURBINE			38.00	48.00					
	NUCLEAR			73.20	76.63					
	NON-UTILITY HYDRO			22.70	24.39					
	NON-UTILITY THERMAL			72.98	72.98					
	TOTAL CAPABILITY, ALL TYPES @			799.18	833.58					
CONNECTICUT MUNICIPALS										
CONN	NORTH MAIN	09-011	GT	15.25	18.38	FO2	TK			
	STATE STREET 1	09-001	IC	5.00	5.00	FO2	WA			
	STATE STREET 2	09-001	IC	10.00	10.00	FO2	WA			
	WALLINGFORD STEAM	09-009	ST	22.50	24.00	FO4	TK	COL	TK	
	NORWICH HYDRO	09-011	HY	0.82	1.07					
	OIL-STEAM			22.50	24.00					
	OIL-INTERNAL COMBUSTION			15.00	15.00					
	OIL-COMBUSTION TURBINE			15.25	18.38					
	MEDIAN HYDRO			0.82	1.07					
	TOTAL CAPABILITY, ALL TYPES			53.57	58.45					
CONNECTICUT MUNICIPAL ELECTRIC COOP										
CMEEC	MIDDLETOWN 1	09-007	ST	2.69	2.82	FO6	WA			3.8684 PERCENT OF UNIT
	MIDDLETOWN 2	09-007	ST	4.53	4.64	FO6	WA			3.8684 PERCENT OF UNIT
	MIDDLETOWN 3	09-007	ST	9.01	9.28	FO6	WA			3.8684 PERCENT OF UNIT
	BULLS BRIDGE	09-005	HY	3.72	3.72					44.8144 PERCENT OF UNIT
	SHEPAUG	09-009	HY	2.85	2.82					6.6362 PERCENT OF UNIT
	MONTVILLE 5	09-011	ST	3.13	3.17	FO6	WA			3.8684 PERCENT OF UNIT
	MONTVILLE 6	09-011	ST	15.86	15.86	FO6	WA			3.8684 PERCENT OF UNIT
	DEVON 7	09-009	ST	4.14	4.22	FO6	WA			3.8684 PERCENT OF UNIT

NOTE: APPENDIX-A DEFINES CODES USED IN COLUMNS 1-11. APPENDIX-B LISTS INDIVIDUAL NON-UTILITY GENERATORS.

SECTION III

NEPOOL'S EXISTING GENERATION CAPABILITY AS OF JANUARY 1, 1989

SYSTEM 01	STATION NAME AND NO. 02	LOCATION 03	UNIT TYPE 04	PRIMARY FUEL: NET CAPABILITY-MW SUMMER 05	PRIMARY FUEL: NET CAPABILITY-MW WINTER 06	PRIMARY FUEL: FUEL TYPE 07	PRIMARY FUEL: TRANSP. METHOD 08	ALTERNATE FUEL: FUEL TYPE 09	ALTERNATE FUEL: TRANSP. METHOD 10	NOTES 11
CONNECTICUT MUNICIPAL ELECTRIC COOP (CONTINUED)										
	DEVON 8	09-009	ST	4.14	4.22	FO6	WA			3.8684 PERCENT OF UNIT
	NORWALK HARBOR 1	09-001	ST	6.27	6.34	FO6	WA			3.8684 PERCENT OF UNIT
	NORWALK HARBOR 2	09-001	ST	6.61	6.73	FO6	WA			3.8684 PERCENT OF UNIT
	NORWALK HARBOR 10	09-001	GT	0.48	0.66	FO2	TK			3.8684 PERCENT OF UNIT
	MONTVILLE 10 & 11	09-011	IC	0.21	0.21	FO2	TK			3.8684 PERCENT OF UNIT
	MIDDLETOWN 10	09-007	JE	0.67	0.85	JP	TK			3.8684 PERCENT OF UNIT
	DEVON 10	09-001	JE	0.67	0.74	JP	WA	FO2	WA	3.8684 PERCENT OF UNIT
	MILLSTONE 1	09-011	NB	22.78	23.04	UR	TK			3.4936 PERCENT OF UNIT
	NORTHFIELD 4	25-011	PS	2.92	2.92					1.1674 PERCENT OF UNIT
	NORTHFIELD 1	25-011	PS	2.92	2.92					1.1674 PERCENT OF UNIT
	NORTHFIELD 2	25-011	PS	2.92	2.92					1.1674 PERCENT OF UNIT
	NORTHFIELD 3	25-011	PS	2.92	2.92					1.1674 PERCENT OF UNIT
	MIDDLETOWN 4	09-007	ST	15.47	15.47	FO6	WA			3.8684 PERCENT OF UNIT
	MILLSTONE 2	09-011	NP	30.15	30.33	UR	TK			3.4936 PERCENT OF UNIT
	MILLSTONE 3	09-011	NP	12.35	12.55	UR	TK			1.0858 PERCENT OF UNIT
	SOUTH NORWALK DIESEL	09-001	IC	13.49	13.49	FO2	TK			
	MAINE YANKEE	23-015	NP	3.78	4.02	UR	TK			0.4706 PERCENT OF UNIT
	VERMONT YANKEE	50-025	NB	1.87	1.96	UR	TK			0.3770 PERCENT OF UNIT
	MASSACHUSETTS YANKEE	25-011	NP	1.89	1.91	UR	TK			1.1006 PERCENT OF UNIT
	CONNECTICUT YANKEE	09-007	NP	8.69	9.02	UR	TK			1.5372 PERCENT OF UNIT
	OIL-STEAM			71.86	72.76					
	OIL-INTERNAL COMBUSTION			13.70	13.70					
	OIL-COMBUSTION TURBINE			1.81	2.25					
	NUCLEAR			81.50	82.84					
	MEDIAN HYDRO			6.57	6.54					
	PUMPED STORAGE			11.67	11.67					
	TOTAL CAPABILITY, ALL TYPES			187.11	189.77					
EASTERN UTILITIES ASSOCIATES SYSTEM										
EUA	W. F. WYMAN 4	23-005	ST	12.06	12.15	FO6	WA			1.9618 PERCENT OF UNIT
	CANAL 1	25-001	ST	142.25	143.00	FO6	WA			25.0000 PERCENT OF UNIT
	CANAL 2	25-001	ST	290.00	292.00	FO6	WA			50.0000 PERCENT OF UNIT
	PILGRIM 1	25-023	NB	0.00	0.00	UR	TK			10.5000 PERCENT OF UNIT

NOTE: APPENDIX-A DEFINES CODES USED IN COLUMNS 1-11. APPENDIX-B LISTS INDIVIDUAL NON-UTILITY GENERATORS.

APRIL 1, 1989

SECTION III

NEPOOL'S EXISTING GENERATION CAPABILITY AS OF JANUARY 1, 1989

SYSTEM	STATION NAME AND NO.	LOCATION	UNIT TYPE	PRIMARY FUEL NET CAPABILITY-MW SUMMER	PRIMARY FUEL NET CAPABILITY-MW WINTER	PRIMARY FUEL FUEL TYPE	PRIMARY FUEL TRANSP. METHOD	ALTERNATE FUEL FUEL TYPE	ALTERNATE FUEL TRANSP. METHOD	NOTES
01	02	03	04	05	06	07	08	09	10	11
EASTERN UTILITIES ASSOCIATES SYSTEM (CONTINUED)										
	MILLSTONE 3	09-011	NP	45.58	46.34	UR	TK			4.0090 PERCENT OF UNIT
	SOMERSET STEAM 5	25-005	ST	72.68	73.01	COL	WA			
	SOMERSET STEAM 6	25-005	ST	110.48	113.67	COL	WA			
	PAWTUCKET 2	44-007	HY	1.19	1.24					
	SOMERSET JET 1	25-005	JE	14.50	22.30	FO1	TK			
	SOMERSET JET 2	25-005	JE	20.65	24.70	FO1	TK			
	MAINE YANKEE	23-015	NP	24.85	26.44	UR	TK			3.0921 PERCENT OF UNIT
	VERMONT YANKEE	50-025	NB	8.68	9.10	UR	TK			1.7500 PERCENT OF UNIT
	MASSACHUSETTS YANKEE	25-011	NP	7.74	7.81	UR	TK			4.5000 PERCENT OF UNIT
	CONNECTICUT YANKEE	09-007	NP	25.43	26.42	UR	TK			4.5000 PERCENT OF UNIT
	OIL-STEAM			444.31	447.15					
	COAL-STEAM			183.16	186.68					
	OIL-COMBUSTION TURBINE			35.15	47.00					
	NUCLEAR			112.28	116.10					
	MEDIAN HYDRO			1.19	1.24					
	TOTAL CAPABILITY, ALL TYPES			776.08	798.17					
FITCHBURG GAS AND ELECTRIC COMPANY										
FGE	W. F. WYMAN 4	23-005	ST	1.12	1.13	FO6	WA			0.1822 PERCENT OF UNIT
	FITCHBURG 7	25-027	GT	20.25	26.58	FO2	TK			
	NUG HYDRO - FGE	-	PH	2.64	2.89					
	MILLSTONE 3	09-011	NP	2.47	2.51	UR	TK			0.2170 PERCENT OF UNIT
	NEW HAVEN HARBOR	09-009	ST	20.12	20.12	FO6	WA			4.5000 PERCENT OF UNIT
	OIL-STEAM			21.23	21.24					
	OIL-COMBUSTION TURBINE			20.25	26.58					
	NUCLEAR			2.47	2.51					
	NON-UTILITY HYDRO			2.64	2.89					
	TOTAL CAPABILITY, ALL TYPES			46.59	53.22					

NOTE: APPENDIX-A DEFINES CODES USED IN COLUMNS 1-11. APPENDIX-B LISTS INDIVIDUAL NON-UTILITY GENERATORS.

SECTION III

NEPOOL'S EXISTING GENERATION CAPABILITY AS OF JANUARY 1, 1989

SYSTEM	STATION NAME AND NO.	LOCATION	UNIT TYPE	PRIMARY FUEL NET CAPABILITY-MW SUMMER	PRIMARY FUEL NET CAPABILITY-MW WINTER	PRIMARY FUEL FUEL TYPE	PRIMARY FUEL TRANSP. METHOD	ALTERNATE FUEL FUEL TYPE	ALTERNATE FUEL TRANSP. METHOD	NOTES
01	02	03	04	05	06	07	08	09	10	11
HOLYOKE GAS AND ELECTRIC DEPARTMENT										
HGE	CABOT 8	25-013	ST	9.00	9.00	FO6	RR	GAS	PL	
	HOLYOKE HYDRO 1-4	25-013	HY	1.85	2.25					
	CABOT 6	25-013	ST	9.00	9.00	FO6	RR	GAS	PL	
	OIL-STEAM			18.00	18.00					
	MEDIAN HYDRO			1.85	2.25					
	TOTAL CAPABILITY, ALL TYPES			19.85	20.25					
HUDSON LIGHT AND POWER DEPARTMENT										
HLPD	CHERRY STREET 7	25-017	IC	3.00	3.00	FO2	TK			
	CHERRY STREET 8	25-017	IC	3.60	3.60	FO2	TK	GAS	PL	ON GAS DURING SUMMER
	CHERRY STREET 9	25-017	IC	3.00	3.00	FO2	TK	GAS	PL	ON GAS DURING SUMMER
	CHERRY STREET 10	25-017	IC	2.20	2.20	FO2	TK	GAS	PL	ON GAS DURING SUMMER
	CHERRY STREET 11	25-017	IC	2.20	2.20	FO2	TK	GAS	PL	ON GAS DURING SUMMER
	CHERRY STREET 12	25-017	IC	5.60	5.60	FO2	TK	GAS	PL	ON GAS DURING SUMMER
	OIL-INTERNAL COMBUSTION			3.00	19.60					
	GAS-INTERNAL COMBUSTION			16.60	0.00					
	TOTAL CAPABILITY, ALL TYPES			19.60	19.60					
IPSWICH MUNICIPAL LIGHT DEPARTMENT										
IMLD	IPSWICH DIESEL 1	25-009	IC	1.25	1.25	GAS	PL	FO2	TK	
	IPSWICH DIESEL 2	25-009	IC	1.36	1.36	GAS	PL	FO2	TK	
	IPSWICH DIESEL 3	25-009	IC	0.73	0.73	FO2	TK			
	IPSWICH DIESEL 4	25-009	IC	0.60	0.60	FO2	TK			
	IPSWICH DIESEL 6	25-009	IC	1.14	1.14	GAS	PL	FO2	TK	
	IPSWICH DIESEL 7	25-009	IC	1.36	1.36	FO2	TK			

NOTE: APPENDIX-A DEFINES CODES USED IN COLUMNS 1-11. APPENDIX-B LISTS INDIVIDUAL NON-UTILITY GENERATORS.

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NEPOOL'S EXISTING GENERATION CAPABILITY AS OF JANUARY 1, 1989

				PRIMARY FUEL				ALTERNATE FUEL		
				NET CAPABILITY-MW						
SYSTEM	STATION NAME AND NO.	LOCATION	UNIT TYPE	SUMMER	WINTER	FUEL TYPE	TRANSP. METHOD	FUEL TYPE	TRANSP. METHOD	NOTES
01	02	03	04	05	06	07	08	09	10	11
IPSWICH MUNICIPAL LIGHT DEPARTMENT (CONTINUED)										
	IPSWICH DIESEL 8	25-009	IC	1.25	1.25	FO2	TK			
	IPSWICH DIESEL 9	25-009	IC	1.36	1.36	GAS	PL	FO2	TK	
	IPSWICH DIESEL 10	25-009	IC	1.25	1.25	FO2	TK			
	IPSWICH DIESEL 11	25-009	IC	1.25	1.25	GAS	PL	FO2	TK	
	IPSWICH DIESEL 12	25-009	IC	1.25	1.25	GAS	PL	FO2	TK	
	OIL-INTERNAL COMBUSTION			5.19	5.19					
	GAS-INTERNAL COMBUSTION			7.61	7.61					
	TOTAL CAPABILITY, ALL TYPES			12.80	12.80					
MARBLEHEAD MUNICIPAL LIGHT DEPT.										
MMLD	WILKINS STREET 1	25-025	IC	2.50	2.50	FO2	TK			
	WILKINS STREET 2	25-025	IC	2.50	2.50	FO2	TK			
	OIL-INTERNAL COMBUSTION			5.00	5.00					
	TOTAL CAPABILITY, ALL TYPES			5.00	5.00					
MASS. MUNICIPAL WHOLESALE ELECTRIC										
MMWEC	W. F. WYMAN 4	23-005	ST	22.54	22.72	FO6	WA			3.6688 PERCENT OF UNIT
	PILGRIM 1	25-023	NB	0.00	0.00	UR	TK			3.7300 PERCENT OF UNIT
	MILLSTONE 3	09-011	NP	54.56	55.48	UR	TK			4.7990 PERCENT OF UNIT
	NEW HAVEN HARBOR	09-009	ST	8.02	8.02	FO6	WA			1.7950 PERCENT OF UNIT
	MAINE YANKEE	23-015	NP	27.32	29.06	UR	TK			3.3990 PERCENT OF UNIT
	VERMONT YANKEE	50-025	NB	18.53	19.43	UR	TK			3.7368 PERCENT OF UNIT
	STONYBROOK GT	25-013	GT	130.00	170.00	FO2	PL			

NOTE: APPENDIX-A DEFINES CODES USED IN COLUMNS 1-11. APPENDIX-B LISTS INDIVIDUAL NON-UTILITY GENERATORS.

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NEPOOL'S EXISTING GENERATION CAPABILITY AS OF JANUARY 1, 1989

SYSTEM	STATION NAME AND NO.	LOCATION	UNIT TYPE	PRIMARY FUEL NET CAPABILITY-MW SUMMER	PRIMARY FUEL NET CAPABILITY-MW WINTER	PRIMARY FUEL FUEL TYPE	PRIMARY FUEL TRANSP. METHOD	ALTERNATE FUEL FUEL TYPE	ALTERNATE FUEL TRANSP. METHOD	NOTES
01	02	03	04	05	06	07	08	09	10	11
MASS. MUNICIPAL WHOLESALE ELECTRIC (CONTINUED)										
	STONYBROOK CT	25-013	CT	162.47	212.47	FO2	PL	GAS	PL	83.3200 PERCENT OF UNIT (1)
	STONYBROOK CW	25-013	CW	71.24	73.32					83.3200 PERCENT OF UNIT (1)
	NUG THERMAL - MMWEC	-	PF	10.33	10.33					
	NUG HYDRO - MMWEC	-	PH	0.81	0.93					
	OIL-STEAM			30.57	30.74					
	OIL-COMBUSTION TURBINE			130.00	170.00					
	OIL-COMBINED CYCLE			77.92	285.79					
	GAS-COMBINED CYCLE			155.79	0.00					
	NUCLEAR			100.42	103.97					
	NON-UTILITY HYDRO			0.81	0.93					
	NON-UTILITY THERMAL			10.33	10.33					
	TOTAL CAPABILITY, ALL TYPES			506.48	602.40					
NEW ENGLAND ELECTRIC SYSTEM										
NEES	W. F. WYMAN 4	23-005	ST	56.96	57.40	FO6	WA			9.2695 PERCENT OF UNIT
	SALEM HARBOR 1	25-009	ST	82.50	84.00	COL	WA	FO6	WA	
	SALEM HARBOR 2	25-009	ST	79.67	80.00	COL	WA	FO6	WA	
	SALEM HARBOR 3	25-009	ST	152.00	151.83	COL	WA	FO6	WA	
	SALEM HARBOR 4	25-009	ST	446.17	442.33	FO6	WA			
	BRAYTON POINT 1	25-005	ST	246.00	251.95	COL	WA	FO6	WA	
	BRAYTON POINT 2	25-005	ST	250.00	250.83	COL	WA	FO6	WA	
	BRAYTON POINT 3	25-005	ST	620.03	621.65	COL	WA	FO6	WA	
	MANCHESTER STREET 9	44-007	ST	42.16	44.33	FO6	WA	NG	PL	GAS CAPABLE DURING SUMMER
	MANCHESTER STREET 10	44-007	ST	45.33	46.33	FO6	WA	NG	PL	GAS CAPABLE DURING SUMMER
	MANCHESTER STREET 11	44-007	ST	46.00	46.33	FO6	WA	NG	PL	GAS CAPABLE DURING SUMMER
	SOUTH STREET STEAM	44-007	ST	99.25	100.00	FO6	WA	NG	PL	GAS CAPABLE DURING SUMMER
	GLOUCESTER 11	25-009	IC	27.00	28.00	FO2	TK			
	NEWBURYPORT 4	25-009	IC	11.00	11.50	FO2	TK			
	SOUTH STREET DIESEL	44-007	IC	5.50	5.50	FO2	TK			
	BRAYTON POINT DIESEL	25-005	IC	11.00	11.25	FO2	TK			

(1) TWO GAS TURBINES ON GAS DURING SUMMER.

NOTE: APPENDIX-A DEFINES CODES USED IN COLUMNS 1-11. APPENDIX-B LISTS INDIVIDUAL NON-UTILITY GENERATORS.

SECTION III

NEPOOL'S EXISTING GENERATION CAPABILITY AS OF JANUARY 1, 1989

						PRIMARY FUEL		ALTERNATE FUEL		
SYSTEM 01	STATION NAME AND NO. 02	LOCATION 03	UNIT TYPE 04	NET CAPABILITY-MW SUMMER 05	NET CAPABILITY-MW WINTER 06	FUEL TYPE 07	TRANSP. METHOD 08	FUEL TYPE 09	TRANSP. METHOD 10	NOTES 11
NEW ENGLAND ELECTRIC SYSTEM (CONTINUED)										
	NUG HYDRO - NEES	-	PH	25.48	26.01					
	NUG THERMAL - NEES	-	PF	118.81	126.08					
	BEAR SWAMP 1	25-011	PS	262.25	292.50					
	BEAR SWAMP 2	25-011	PS	282.25	292.50					
	MOORE	50-009	HY	191.46	191.96					
	BRAYTON POINT 4	25-005	ST	428.00	440.00	FO6	WA			
	BELLOWS FALLS	50-025	HY	47.92	47.92					
	VERNON	50-025	HY	28.46	28.46					
	HARRIMAN	50-025	HY	41.96	39.96					
	MCINDOES	33-009	HY	11.48	13.00					
	FIFE BROOK	25-003	HY	9.70	8.45					
	SHERMAN	25-011	HY	6.50	6.49					
	COMERFORD	50-009	HY	161.92	161.34					
	WILDER	50-027	HY	40.46	40.92					
	SEARSBURG	50-003	HY	5.00	4.96					
	DEERFIELD 2	25-011	HY	6.46	6.50					
	DEERFIELD 3	25-011	HY	6.50	5.96					
	DEERFIELD 4	25-011	HY	6.17	5.42					
	DEERFIELD 5	25-011	HY	13.99	13.99					
	CANAL 1	25-001	ST	142.25	143.00	FO6	WA			25.0000 PERCENT OF UNIT
	MOUNT TOM	25-013	ST	55.21	55.59	COL	RR	FO6	RR	37.8182 PERCENT OF UNIT
	MILLSTONE 3	09-011	NP	138.77	141.09	UR	TK			12.2050 PERCENT OF UNIT
	MAINE YANKEE	23-015	NP	144.37	153.56	UR	TK			17.9607 PERCENT OF UNIT
	VERMONT YANKEE	50-025	NB	89.19	93.51	UR	TK			17.9820 PERCENT OF UNIT
	MASSACHUSETTS YANKEE	25-011	NP	51.58	52.05	UR	TK			30.0000 PERCENT OF UNIT
	CONNECTICUT YANKEE	09-007	NP	84.75	88.05	UR	TK			15.0000 PERCENT OF UNIT
	OIL-STEAM			1301.47	1319.72					
	GAS-STEAM			4.65	0.00					
	COAL-STEAM			1485.41	1495.85					
	OIL-INTERNAL COMBUSTION			54.50	56.25					
	NUCLEAR			508.66	528.26					
	MEDIAN HYDRO			577.98	575.33					
	PUMPED STORAGE			564.50	585.00					
	NON-UTILITY HYDRO			25.48	26.01					
	NON-UTILITY THERMAL			118.81	126.08					
	TOTAL CAPABILITY, ALL TYPES			4641.47	4712.50					

NOTE: APPENDIX-A DEFINES CODES USED IN COLUMNS 1-11. APPENDIX-B LISTS INDIVIDUAL NON-UTILITY GENERATORS.

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NEPOOL'S EXISTING GENERATION CAPABILITY AS OF JANUARY 1, 1989

				PRIMARY FUEL				ALTERNATE FUEL		
SYSTEM	STATION NAME AND NO.	LOCATION	UNIT TYPE	NET CAPABILITY-MW SUMMER	NET CAPABILITY-MW WINTER	FUEL TYPE	TRANSP. METHOD	FUEL TYPE	TRANSP. METHOD	NOTES
01	02	03	04	05	06	07	08	09	10	11
NEWPORT ELECTRIC CORPORATION										
NEWP	W. F. WYMAN 4	23-005	ST	4.10	4.13	FO6	WA			0.6666 PERCENT OF UNIT
	PILGRIM 1	25-023	NB	0.00	0.00	UR	TK			0.5000 PERCENT OF UNIT
	JEPSON 1-4	44-005	IC	7.76	8.00	FO2	TK			
	ELDRED 1-3	44-005	IC	8.25	8.25	FO2	TK			
	MAINE YANKEE	23-015	NP	4.02	4.28	UR	TK			0.5000 PERCENT OF UNIT
	VERMONT YANKEE	50-025	NB	2.48	2.60	UR	TK			0.5000 PERCENT OF UNIT
	OIL-STEAM			4.10	4.13					
	OIL-INTERNAL COMBUSTION			16.01	16.25					
	NUCLEAR			6.50	6.88					
	TOTAL CAPABILITY, ALL TYPES			26.61	27.25					
NORTHEAST UTILITIES										
NU	MOUNT TOM	25-013	ST	90.79	91.41	COL	RR	FO6	RR	62.1818 PERCENT OF UNIT
	WEST SPRINGFIELD 1	25-013	ST	51.00	51.50	FO6	RR			
	WEST SPRINGFIELD 2	25-013	ST	51.00	51.50	FO6	RR			
	WEST SPRINGFIELD 3	25-013	ST	107.30	108.30	FO6	RR			
	MIDDLETOWN 1	09-007	ST	66.81	70.18	FO6	WA			96.1316 PERCENT OF UNIT
	MIDDLETOWN 2	09-007	ST	112.47	115.36	FO6	WA			96.1316 PERCENT OF UNIT
	MIDDLETOWN 3	09-007	ST	223.99	230.72	FO6	WA			96.1316 PERCENT OF UNIT
	BULLS BRIDGE	09-005	HY	4.58	4.58					55.1856 PERCENT OF UNIT
	ROBERTSVILLE	09-005	HY	0.32	0.55					
	SCOTLAND	09-015	HY	2.15	2.20					
	TUNNEL HYDRO	09-011	HY	2.00	2.00					
	STEVENSON	09-001	HY	29.44	28.90					
	TAFTVILLE	09-011	HY	1.20	2.00					
	SHEPAUG	09-009	HY	40.15	39.68					93.3638 PERCENT OF UNIT
	FALLS VILLAGE STA.	09-005	HY	11.00	10.20					
	MONTVILLE 5	09-011	ST	77.87	78.83	FO6	WA			96.1316 PERCENT OF UNIT
	MONTVILLE 6	09-011	ST	394.14	394.14	FO6	WA			96.1316 PERCENT OF UNIT
	DEVON 3	09-009	ST	68.00	71.00	FO6	WA			
	DEVON 4	09-009	ST	50.00	52.00	FO6	WA			
	DEVON 5	09-009	ST	48.00	51.00	FO6	WA			
	DEVON 6	09-009	ST	68.00	71.00	FO6	WA			

NOTE: APPENDIX-A DEFINES CODES USED IN COLUMNS 1-11. APPENDIX-B LISTS INDIVIDUAL NON-UTILITY GENERATORS.

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NEPOOL'S EXISTING GENERATION CAPABILITY AS OF JANUARY 1, 1989

				NET CAPABILITY-MW		PRIMARY FUEL		ALTERNATE FUEL		
SYSTEM	STATION NAME AND NO.	LOCATION	UNIT TYPE	SUMMER	WINTER	FUEL TYPE	TRANSP. METHOD	FUEL TYPE	TRANSP. METHOD	NOTES
01	02	03	04	05	06	07	08	09	10	11
NORTHEAST UTILITIES (CONTINUED)										
	DEVON 7	09-009	ST	102.86	104.78	FO6	WA			96.1316 PERCENT OF UNIT
	DEVON 8	09-009	ST	102.86	104.78	FO6	WA			96.1316 PERCENT OF UNIT
	NORWALK HARBOR 1	09-001	ST	155.73	157.66	FO6	WA			96.1316 PERCENT OF UNIT
	NORWALK HARBOR 2	09-001	ST	164.39	167.27	FO6	WA			96.1316 PERCENT OF UNIT
	BRANFORD 10	09-009	JE	17.20	22.00	JP	TK			
	SILVER LAKE 10	25-003	GT	14.00	17.80	FO2	TK			
	SILVER LAKE 11	25-003	GT	14.00	17.80	FO2	TK			
	SILVER LAKE 12	25-003	GT	14.00	17.80	FO2	TK			
	SILVER LAKE 13	25-003	GT	14.00	17.80	FO2	TK			
	NORWALK HARBOR 10	09-001	GT	11.82	16.34	FO2	TK			96.1316 PERCENT OF UNIT
	CABOT STATION	25-011	HY	53.00	53.00					
	MONTVILLE 10 11	09-011	IC	5.29	5.29	FO2	TK			96.1316 PERCENT OF UNIT
	WEST SPRINGFIELD 10	25-013	JE	17.20	22.00	JP	TK			
	WOODLAND ROAD 10	25-003	JE	16.60	21.20	JP	TK			
	DOREEN 10	25-003	JE	16.60	21.20	JP	TK			
	COS COB 10	09-001	JE	19.00	24.00	JP	TK			
	COS COB 11	09-001	JE	18.80	24.00	JP	TK			
	COS COB 12	09-001	JE	19.00	24.00	JP	TK			
	FRANKLIN DRIVE 10	09-005	JE	17.20	22.00	JP	TK			
	MIDDLETOWN 10	09-007	JE	16.53	21.15	JP	TK			96.1316 PERCENT OF UNIT
	SOUTH MEADOW 11	09-003	JE	38.80	49.00	JP	WT			
	SOUTH MEADOW 12	09-003	JE	39.00	49.00	JP	WT			
	SOUTH MEADOW 13	09-003	JE	39.00	49.00	JP	WT			
	SOUTH MEADOW 14	09-003	JE	39.00	49.00	JP	WT			
	TORRINGTON TERMINAL	09-005	JE	17.20	21.80	JP	TK			
	TUNNEL JET 10	09-011	JE	17.20	21.80	JP	TK			
	DEVON 10	09-001	JE	16.53	18.46	JP	WA	FO2	WA	96.1316 PERCENT OF UNIT
	TURNERS FALLS	25-011	HY	6.25	6.25					
	COBBLE MOUNTAIN	25-013	HY	34.98	33.98					
	GARDNER FALLS	25-011	HY	3.40	3.40					
	CHICOPEE RIVER	25-013	HY	11.60	11.81					
	HOLYOKE WATER	25-013	HY	42.40	41.55					
	ROCKY RIVER	09-009	PS	31.00	32.40					
	MILLSTONE 1	09-011	NB	629.22	636.46	UR	TK			96.5064 PERCENT OF UNIT
	NORTHFIELD 4	25-011	PS	247.08	247.08					98.8326 PERCENT OF UNIT
	NORTHFIELD 1	25-011	PS	247.08	247.08					98.8326 PERCENT OF UNIT
	NORTHFIELD 2	25-011	PS	247.08	247.08					98.8326 PERCENT OF UNIT
	NORTHFIELD 3	25-011	PS	247.08	247.08					98.8326 PERCENT OF UNIT

NOTE: APPENDIX-A DEFINES CODES USED IN COLUMNS 1-11. APPENDIX-B LISTS INDIVIDUAL NON-UTILITY GENERATORS.

SECTION III

NEPOOL'S EXISTING GENERATION CAPABILITY AS OF JANUARY 1, 1989

SYSTEM	STATION NAME AND NO.	LOCATION	UNIT TYPE	PRIMARY FUEL				ALTERNATE FUEL		NOTES
				NET CAPABILITY-MW		FUEL TYPE	TRANSP. METHOD	FUEL TYPE	TRANSP. METHOD	
				SUMMER	WINTER					
01	02	03	04	05	06	07	08	09	10	11
NORTHEAST UTILITIES (CONTINUED)										
	MIDDLETOWN 4	09-007	ST	384.53	384.53	FO6	WA			96.1316 PERCENT OF UNIT
	MILLSTONE 2	09-011	NP	832.73	837.92	UR	TK			96.5064 PERCENT OF UNIT
	MILLSTONE 3	09-011	NP	741.00	753.36	UR	TK			65.1715 PERCENT OF UNIT
	NUG THERMAL - NU	-	PF	138.45	138.45					
	BANTAM	09-005	HY	0.28	0.28					
	RAINBOW	25-	HY	8.00	8.00					
	MAINE YANKEE	23-015	NP	104.50	111.15	UR	TK			12.9999 PERCENT OF UNIT
	VERMONT YANKEE	50-025	NB	51.65	54.15	UR	TK			10.4139 PERCENT OF UNIT
	MASSACHUSETTS YANKEE	25-011	NP	52.26	52.74	UR	TK			30.3994 PERCENT OF UNIT
	CONNECTICUT YANKEE	09-007	NP	239.91	249.26	UR	TK			42.4628 PERCENT OF UNIT
	OIL-STEAM			2228.94	2264.54					
	COAL-STEAM			90.79	91.41					
	OIL-INTERNAL COMBUSTION			5.29	5.29					
	OIL-COMBUSTION TURBINE			432.69	547.15					
	NUCLEAR			2651.28	2695.06					
	MEDIAN HYDRO			250.75	248.38					
	PUMPED STORAGE			1019.33	1020.73					
	NON-UTILITY THERMAL			138.45	138.45					
	TOTAL CAPABILITY, ALL TYPES			6817.52	7010.99					
PEABODY MUNICIPAL LIGHT PLANT										
PMLP	WARREN STREET 1	25-009	IC	2.00	2.00	FO2	TK			
	WATERS RIVER GT	25-009	GT	14.00	20.00	FO2	TK			
	WARREN STREET 2	25-009	IC	2.00	2.00	FO2	TK			
	WARREN STREET 3	25-009	IC	2.00	2.00	FO2	TK			
	WARREN STREET 4	25-009	IC	3.50	3.50	FO2	TK			
	OIL-INTERNAL COMBUSTION			9.50	9.50					
	OIL-COMBUSTION TURBINE			14.00	20.00					
	TOTAL CAPABILITY, ALL TYPES			23.50	29.50					

NOTE: APPENDIX-A DEFINES CODES USED IN COLUMNS 1-11. APPENDIX-B LISTS INDIVIDUAL NON-UTILITY GENERATORS.

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SECTION III

NEPOOL'S EXISTING GENERATION CAPABILITY AS OF JANUARY 1, 1989

SYSTEM	STATION NAME AND NO.	LOCATION	UNIT TYPE	NET CAPABILITY-MW SUMMER	NET CAPABILITY-MW WINTER	PRIMARY FUEL: FUEL TYPE	PRIMARY FUEL: TRANSP. METHOD	ALTERNATE FUEL: FUEL TYPE	ALTERNATE FUEL: TRANSP. METHOD	NOTES
01	02	03	04	05	06	07	08	09	10	11
PRINCETON MUNICIPAL LIGHT DEPT.										
PMLD	WIND FARM	25-027	WM	0.06	0.10	WND				
	WIND			0.06	0.10					
	TOTAL CAPABILITY, ALL TYPES			0.06	0.10					
PUBLIC SERVICE OF NEW HAMPSHIRE										
PSNH	W. F. WYMAN 4	23-005	ST	19.32	19.46	FO6	WA			3.1433 PERCENT OF UNIT
	MERRIMACK STEAM 1	33-013	ST	120.83	124.17	COL	RR	FO6	TK	
	MERRIMACK STEAM 2	33-013	ST	244.83	244.83	COL	RR			71.0002 PERCENT OF UNIT
	SCHILLER 3	33-015	ST	0.00	26.88	FO6	WA			
	SCHILLER 4	33-015	ST	48.50	48.83	COL	WA	FO6	WA	
	SCHILLER 5	33-015	ST	50.67	50.32	COL	WA	FO6	WA	
	SCHILLER 6	33-015	ST	50.50	50.50	COL	WA	FO6	WA	
	WOLFEBORO DIESEL	09-001	IC	2.50	2.75	FO2	TK			
	NUG HYDRO - PSNH	-	PH	23.99	28.95					
	CONWAY DIESELS 1-3	33-017	IC	3.00	3.11	FO2	TK			
	LOST NATION GT	33-007	GT	16.10	20.40	FO2	TK			
	WHITE LAKE JET	33-003	JE	20.20	22.50	FO1	TK			
	MERRIMACK JET 1	33-013	JE	17.00	24.70	FO1	TK			
	MERRIMACK JET 2	33-013	JE	19.80	24.20	FO1	TK			
	SCHILLER JET	33-015	JE	19.40	24.30	FO1	TK	GAS	PL	ON GAS DURING SUMMER
	AMOSKEAG	33-011	HY	17.50	17.45					
	AYERS ISLAND	33-001	HY	9.08	9.08					
	CANAAN	50-009	HY	1.10	1.10					
	EASTMAN FALLS	33-013	HY	6.47	6.40					
	NEWINGTON 1	33-015	ST	421.17	424.83	FO6	WA	CRU	WA	
	NUG THERMAL - PSNH	-	PF	114.01	115.24					
	GARVINS	33-013	HY	10.55	10.45					
	GORHAM	33-007	HY	2.05	1.95					
	HOOKSETT	33-013	HY	1.90	1.95					
	JACKMAN	33-011	HY	3.75	3.60					

NOTE: APPENDIX-A DEFINES CODES USED IN COLUMNS 1-11. APPENDIX-B LISTS INDIVIDUAL NON-UTILITY GENERATORS.

SECTION III

NEPOOL'S EXISTING GENERATION CAPABILITY AS OF JANUARY 1, 1989

				PRIMARY FUEL				ALTERNATE FUEL		
SYSTEM	STATION NAME AND NO.	LOCATION	UNIT TYPE	NET CAPABILITY-MW SUMMER	WINTER	FUEL TYPE	TRANSP. METHOD	FUEL TYPE	TRANSP. METHOD	NOTES
01	02	03	04	05	06	07	08	09	10	11
PUBLIC SERVICE OF NEW HAMPSHIRE (CONTINUED)										
	SMITH	33-007	HY	16.50	16.60					
	MILLSTONE 3	09-011	NP	32.38	32.92	UR	TK			2.8475 PERCENT OF UNIT
	MAINE YANKEE	23-015	NP	36.09	38.39	UR	TK			4.4902 PERCENT OF UNIT
	VERMONT YANKEE	50-025	NB	17.81	18.67	UR	TK			3.5910 PERCENT OF UNIT
	MASSACHUSETTS YANKEE	25-011	NP	12.03	12.14	UR	TK			7.0000 PERCENT OF UNIT
	CONNECTICUT YANKEE	09-007	NP	28.25	29.35	UR	TK			5.0000 PERCENT OF UNIT
	OIL-STEAM			440.49	471.17					
	COAL-STEAM			515.33	518.65					
	OIL-INTERNAL COMBUSTION			5.50	5.86					
	OIL-COMBUSTION TURBINE			73.10	116.10					
	GAS-COMBUSTION TURBINE			19.40	0.00					
	NUCLEAR			126.56	131.48					
	MEDIAN HYDRO			68.90	68.58					
	NON-UTILITY HYDRO			23.99	28.95					
	NON-UTILITY THERMAL			114.01	115.24					
	TOTAL CAPABILITY, ALL TYPES			1387.28	1456.03					
SHREWSBURY ELECTRIC LIGHT PLANT										
SELP	SHREWSBURY 1	25-027	IC	2.75	2.75	FO2	TK			
	SHREWSBURY 2	25-027	IC	2.75	2.75	FO2	TK			
	SHREWSBURY 3	25-027	IC	2.75	2.75	FO2	TK			
	SHREWSBURY 4	25-027	IC	2.75	2.75	FO2	TK			
	SHREWSBURY 5	25-027	IC	2.75	2.75	FO2	TK			
	OIL-INTERNAL COMBUSTION			13.75	13.75					
	TOTAL CAPABILITY, ALL TYPES			13.75	13.75					

NOTE: APPENDIX-A DEFINES CODES USED IN COLUMNS 1-11. APPENDIX-B LISTS INDIVIDUAL NON-UTILITY GENERATORS.

APRIL 1, 1989

SECTION III

NEPOOL'S EXISTING GENERATION CAPABILITY AS OF JANUARY 1, 1989

SYSTEM	STATION NAME AND NO.	LOCATION	UNIT TYPE	PRIMARY FUEL NET CAPABILITY-MW SUMMER	WINTER	FUEL TYPE	TRANSP. METHOD	ALTERNATE FUEL FUEL TYPE	TRANSP. METHOD	NOTES
01	02	03	04	05	06	07	08	09	10	11
STERLING MUNICIPAL ELEC. LIGHT DEPT										
SMLD	MAINE YANKEE	23-015	NP	0.21	0.22	UR	TK			0.0263 PERCENT OF UNIT
	NUCLEAR			0.21	0.22					
	* TOTAL CAPABILITY, ALL TYPES			0.21	0.22					
TAUNTON MUNICIPAL LIGHT DEPARTMENT										
TMLP	CLEARY 8	25-005	ST	25.00	25.00	FO6	TK			
	CLEARY CA 9	25-005	CA	87.00	87.00	FO6	TK			ON GAS DURING SUMMER
	CLEARY CT 9	25-005	CT	18.00	23.00	FO6	TK	NG	PL	ON GAS DURING SUMMER
	MAINE YANKEE	23-015	NP	4.29	4.56	UR	TK			0.5337 PERCENT OF UNIT
	VERMONT YANKEE	50-025	NB	2.28	2.39	UR	TK			0.4602 PERCENT OF UNIT
	OIL-STEAM			25.00	25.00					
	OIL-COMBINED CYCLE			0.00	110.00					
	GAS-COMBINED CYCLE			105.00	0.00					
	NUCLEAR			6.57	6.96					
	TOTAL CAPABILITY, ALL TYPES			136.57	141.96					
UNITED ILLUMINATING COMPANY										
UI	MILLSTONE 3	09-011	NP	41.90	42.60	UR	TK			3.6850 PERCENT OF UNIT
	ENGLISH 7	09-009	ST	34.12	35.00	FO6	PL			
	ENGLISH 8	09-009	ST	37.00	39.48	FO6	PL			
	BRIDGEPORT HARBOR 1	09-001	ST	82.00	82.00	FO6	WA			
	BRIDGEPORT HARBOR 2	09-001	ST	170.00	176.00	FO6	WA			
	BRIDGEPORT HARBOR 3	09-001	ST	385.00	385.00	COL	WA	FO6	WA	
	BRIDGEPORT HARBOR 4	09-001	JE	17.10	22.00	JF	TK			

NOTE: APPENDIX-A DEFINES CODES USED IN COLUMNS 1-11. APPENDIX-B LISTS INDIVIDUAL NON-UTILITY GENERATORS.

SECTION III

NEPOOL'S EXISTING GENERATION CAPABILITY AS OF JANUARY 1, 1989

				PRIMARY FUEL				ALTERNATE FUEL		
				NET CAPABILITY-MW						
SYSTEM	STATION NAME AND NO.	LOCATION	UNIT TYPE	SUMMER	WINTER	FUEL TYPE	TRANSP. METHOD	FUEL TYPE	TRANSP. METHOD	NOTES
01	02	03	04	05	06	07	08	09	10	11
UNITED ILLUMINATING COMPANY (CONTINUED)										
	NEW HAVEN HARBOR	09-009	ST	418.86	418.86	FO6	WA			93.7050 PERCENT OF UNIT
	NUG THERMAL - UI	-	PP	63.38	63.37					
	CONNECTICUT YANKEE	09-007	NP	53.67	55.76	UR	TK			9.5000 PERCENT OF UNIT
	OIL-STEAM			741.98	751.34					
	COAL-STEAM			385.00	385.00					
	OIL-COMBUSTION TURBINE			17.10	22.00					
	NUCLEAR			95.57	98.36					
	NON-UTILITY THERMAL			63.38	63.37					
	TOTAL CAPABILITY, ALL TYPES			1303.03	1320.08					
UNITIL POWER CORPORATION										
UNITIL	NUG THERMAL - UNITIL	-	PP	33.60	33.60					
	NON-UTILITY THERMAL			33.60	33.60					
	TOTAL CAPABILITY, ALL TYPES			33.60	33.60					
VERMONT GROUP										
VTGP	W. F. WYMAN 4	23-005	ST	18.15	18.29	FO6	WA			2.9537 PERCENT OF UNIT
	MERRIMACK STEAM 2	33-013	ST	100.00	100.00	COL	RR			28.9998 PERCENT OF UNIT
	ASCUTNEY GT	50-027	GT	10.05	14.70	FO2	TK			
	GORGE GT	50-007	GT	10.00	15.50	FO2	TK			
	RUTLAND 5 GT	50-021	GT	10.35	14.10	FO2	TK	FO6	TK	
	ESSEX DIESELS	50-007	IC	4.00	4.00	FO2	TK			
	NEWPORT DIESELS	50-019	IC	6.60	6.60	FO2	TK			
	ST. ALBANS DIESELS	50-011	IC	2.30	2.40	FO2	TK			
	VERGENNES DIESELS	50-001	IC	4.00	4.00	FO2	TK			

NOTE: APPENDIX-A DEFINES CODES USED IN COLUMNS 1-11. APPENDIX-B LISTS INDIVIDUAL NON-UTILITY GENERATORS.

APRIL 1, 1989

SECTION III

NEPOOL'S EXISTING GENERATION CAPABILITY AS OF JANUARY 1, 1989

SYSTEM 01	STATION NAME AND NO. 02	LOCATION 03	UNIT TYPE 04	PRIMARY FUEL NET CAPABILITY-MW SUMMER 05	PRIMARY FUEL NET CAPABILITY-MW WINTER 06	PRIMARY FUEL FUEL TYPE 07	PRIMARY FUEL TRANSP. METHOL 08	ALTERNATE FUEL FUEL TYPE 09	ALTERNATE FUEL TRANSP. METHOD 10	NOTES 11
VERMONT GROUP (CONTINUED)										
	HARDWICK DIESEL	50-005	IC	0.50	0.60	FO2	TK			
	BERLIN JET	50-023	JE	44.40	56.50	FO1	TK			
	BURLINGTON JET	50-007	JE	18.70	23.90	FO2	TK			
	BARTON DIESELS	50-019	IC	1.50	1.50	FO2	TK			
	ENOSBURG DIESELS	50-011	IC	0.90	0.90	FO2	TK			
	NUG HYDRO - VTGP	-	PH	33.72	40.88					
	VERMONT HYDRO	50-	HY	108.63	114.05					
	J C MCNEIL 1	50-007	ST	51.58	53.00	WOD	TK		RR	
	MILLSTONE 3	09-011	NP	24.21	24.61	UR	TK			2.1292 PERCENT OF UNIT
	MAINE YANKEE	23-015	NP	14.44	15.36	UR	TK			1.7961 PERCENT OF UNIT
	VERMONT YANKEE	50-025	NB	272.80	286.00	UR	TK			55.0000 PERCENT OF UNIT
	MASSACHUSETTS YANKEE	25-011	NP	6.02	6.07	UR	TK			3.5000 PERCENT OF UNIT
	CONNECTICUT YANKEE	09-007	NP	11.30	11.74	UR	TK			2.0000 PERCENT OF UNIT
	NUG THERMAL - VTGP	-	PP	8.67	8.72					
	STONYBROOK CT	25-013	CT	32.53	42.53	FO2	PL	GAS	PL	16.6800 PERCENT OF UNIT (1)
	STONYBROOK CW	25-013	CW	14.26	14.68					16.6800 PERCENT OF UNIT (1)
	OIL-STEAM			18.15	18.29					
	COAL-STEAM			100.00	100.00					
	WOOD-STEAM			51.58	53.00					
	OIL-INTERNAL COMBUSTION			19.80	20.00					
	OIL-COMBUSTION TURBINE			93.50	124.70					
	OIL-COMBINED CYCLE			15.60	57.21					
	GAS-COMBINED CYCLE			31.19	0.00					
	NUCLEAR			328.76	343.78					
	MEDIAN HYDRO			108.63	114.05					
	NON-UTILITY HYDRO			33.72	40.88					
	NON-UTILITY THERMAL			8.67	8.72					
	TOTAL CAPABILITY, ALL TYPES			809.60	880.64					

(1) TWO GAS TURBINES ON GAS DURING SUMMER.

NOTE: APPENDIX-A DEFINES CODES USED IN COLUMNS 1-11. APPENDIX-B LISTS INDIVIDUAL NON-UTILITY GENERATORS.

SECTION III

NEPOOL PURCHASES AND SALES AS OF JANUARY 1, 1989

RECEIVING SYSTEM	SUPPLYING SYSTEM	TYPE	FUEL	CAPABILITY - MW SUMMER	WINTER
CAPACITY PURCHASES					
BANGOR HYDRO ELECTRIC COMPANY	NEW BRUNSWICK	PP		24.00	24.00
CENTRAL MAINE POWER COMPANY	NEW BRUNSWICK	PP		150.00	150.00
CENTRAL MAINE POWER COMPANY	NEW BRUNSWICK	PP		60.00	60.00
PUBLIC SERVICE OF NEW HAMPSHIRE	CENTRAL HUDSON	PP		25.00	25.00
PUBLIC SERVICE OF NEW HAMPSHIRE	NEW BRUNSWICK	PP		60.00	60.00
VERMONT GROUP	HYDRO QUEBEC	PP		195.10	195.10
NEW ENGLAND ELECTRIC SYSTEM	NYSEG	PP		75.00	75.00
NEW ENGLAND ELECTRIC SYSTEM	PSEG	PP		75.00	75.00
N.E./N.Y. BORDER STATES	NYPA PURCHASE	PP		171.20	171.20
NEW ENGLAND ELECTRIC SYSTEM	NIAGARA MOHAWK	PP		150.00	150.00
VERMONT GROUP	HQ-SO. CANADA PUR.	PP		30.00	34.00
VERMONT GROUP	C H G AND E	PP		20.00	20.00
VERMONT GROUP	ONTARIO HYDRO	PP		81.55	81.55
VERMONT GROUP	R G AND E	PP		50.00	50.00
COMMONWEALTH ELECTRIC SYSTEM	POINT LEPREAU 1	PP	UR	25.00	25.00
BOSTON EDISON COMPANY	NB-POINT LEPREAU 1	PP	UR	100.00	100.00
NORTHEAST UTILITIES	PSEG	PP		0.00	65.00
UNITED ILLUMINATING COMPANY	CENTRAL HUDSON	PP		25.00	25.00
UNITIL POWER CORPORATION	NEW BRUNS. - UNITIL	PP		6.00	6.00
VERMONT GROUP	HQ OTHER 1	PP		54.00	54.00
MASS. MUNICIPAL WHOLESALE ELECTRIC	POINT LEPREAU 1	PP	UR	100.00	100.00
		TOTAL PURCHASES		1476.85	1545.85
CAPACITY SALES					
MAINE PUBLIC SERVICE	W. F. WYMAN 4	SP	FO6	20.56	20.72
MAINE PUBLIC SERVICE	MAINE YANKEE	SP	UR	44.06	45.17
NEW HAMPSHIRE MUNICIPALS	MAINE YANKEE	SP	UR	6.07	6.23
MAINE MUNICIPALS	MAINE YANKEE	SP	UR	2.55	2.61
		TOTAL SALES		73.24	74.73
	NET OF PURCHASES AND SALES			1403.61	1471.12

SECTION IV

PROPOSED ADDITIONS TO NEPOOL GENERATION CAPACITY

JANUARY 1989 THROUGH JANUARY 2005

OPERATING COMPANY		STATION	TYPE	FUEL	STATUS	CAPABILITY - MW SUMMER	WINTER	EXPECTED OPERATION
VERMONT GROUP		PROCTOR	IC		P	0.60	0.60	11/ 1/ 1989
PUBLIC SERVICE OF NEW HAMPSHIRE	(1)	SEABROOK 1	NP	UR	V*	1150.00	1150.00	1/ 1/ 1990
VERMONT GROUP		HIGHGATE FALLS	HY		U	3.10	5.50	4/ 1/ 1990
CENTRAL MAINE POWER COMPANY		MONTY	HY		U	25.00	25.00	9/ 1/ 1990
OCEAN STATE POWER		OCEAN STATE POWER 1	CC	NG	T	225.00	250.00	12/31/ 1990
VERMONT GROUP		FLORENCE	GT		P	9.00	9.00	11/ 1/ 1991
VERMONT GROUP		NEWPORT 1	HY		B	0.20	0.20	11/ 1/ 1991
OCEAN STATE POWER		OCEAN STATE POWER 2	CC	NG	L	225.00	250.00	11/ 1/ 1991
VERMONT GROUP		C. RUTLAND	HY		P	0.30	0.80	4/ 1/ 1992
VERMONT GROUP		FAIRFAX FALLS	HY		P	2.80	3.50	11/ 1/ 1992
NEW ENGLAND ELECTRIC SYSTEM		VERNON	HY		P	20.00	20.00	12/ 1/ 1992
BANGOR HYDRO ELECTRIC COMPANY		VEAZIE	HY		P	4.80	4.80	1/ 1/ 1993
BANGOR HYDRO ELECTRIC COMPANY		MILTON	HY		P	1.70	1.70	1/ 1/ 1993
NEW ENGLAND ELECTRIC SYSTEM		BELLOWS FALLS	HY		P	6.00	6.00	6/ 1/ 1993
BANGOR HYDRO ELECTRIC COMPANY		BASIN MILLS	HY		P	20.70	20.70	1/ 1/ 1995
NEW ENGLAND ELECTRIC SYSTEM	(2)(3)	RP MANCH 9,10,11	CC	NG/FO2	P	280.00	370.00	5/ 1/ 1995
COMMONWEALTH ELECTRIC SYSTEM	(4)	COMBINED CYCLE	CC	NG/KER	P	96.70	115.60	6/ 1/ 1995
VERMONT GROUP		NEWPORT 2	HY		P	6.80	6.80	11/ 1/ 1996
COMMONWEALTH ELECTRIC SYSTEM	(4)	COMBINED CYCLE	CC	NG/KER	P	96.70	115.60	6/ 1/ 2000
NORTHEAST UTILITIES	(2)	RP DEVON 3	CC	NG/FO2	P	186.00	223.00	1/ 1/ 2001
NORTHEAST UTILITIES	(2)	RP DEVON 4+5	CC	NG/FO2	P	219.00	261.00	1/ 1/ 2003
NORTHEAST UTILITIES	(2)	RP DEVON 6	CC	NG/FO2	P	186.00	223.00	1/ 1/ 2005

NOTE: UNITS WITH STATUS CODES T,U,V AND ALL ASTERISK ITEMS ARE INCLUDED IN CAPABILITY TOTALS (SEE APPENDIX-A FOR DEFINITIONS).

(1) PSNH IS UNABLE TO PREDICT WHEN THE SEABROOK PLANT WILL BE PERMITTED TO COMMENCE OPERATION. HOWEVER, FOR PLANNING AND REPORTING PURPOSES, NEPLAN IS ASSUMING COMMERCIAL OPERATION BY JANUARY 1, 1990.
(2) UNITS ARE REPOWERED BY ADDING NEW COMBUSTION TURBINES AND NEW HEAT RECOVERY STEAM GENERATORS TO EXISTING STEAM UNITS.
(3) PHASED IN SERVICE DATES WITH 1ST UNIT EXPECTED LATE 1994 AND REMAINING UNITS BY SUMMER, 1995.
(4) HYPOTHETICAL UNIT TO FILL ANTICIPATED RESOURCE REQUIREMENT - RESOURCES TO MEET THIS FUTURE REQUIREMENT MAY ACTUALLY COME FROM SOME OTHER RESOURCES THAN THAN THOSE SHOWN.

SECTION IV

SUMMARY - EXISTING AND PROPOSED NON-UTILITY GENERATION ADDITIONS AS REPORTED BY THE NEPOOL COMPANIES - 1988 THRU 2004

COMMITTED (1)

YEAR	CLAIMED CAPACITY (MW)						NETTED FROM LOAD CAPACITY (MW)							
	THERMAL		RENEWABLES		TOTALS		THERMAL		RENEWABLES		TOTALS		COINCIDENT WITH PEAK LOAD (3)	
	SUM.	WIN.(4)	SUM.	WIN.(4)	SUM.	WIN.(4)	SUM.	WIN.	SUM.	WIN.	SUM.	WIN.	SUM.	WIN.
1988	657	812	186	207	843	1019	59	59	77	81	136	141	48	53
1989	900	1220	228	247	1128	1468	59	62	84	83	143	151	53	57
1990	1442	1582	228	249	1671	1832	108	110	90	89	197	200	90	93
1991	1590	1652	233	258	1823	1911	110	110	90	89	200	200	92	93
1992	1622	1652	238	258	1860	1911	110	110	90	89	200	200	92	93
1993	1622	1653	238	258	1860	1912	110	110	90	89	200	200	92	93
1994	1623	1653	238	258	1861	1912	110	110	90	89	200	200	92	93
1995	1623	1653	238	258	1861	1912	110	110	90	89	200	200	92	93
1996	1623	1653	238	258	1861	1912	110	110	90	89	200	200	92	93
1997	1623	1653	238	258	1861	1912	110	110	90	89	200	200	92	93
1998	1623	1653	238	258	1861	1912	110	110	90	89	200	200	92	93
1999	1623	1653	238	258	1861	1912	110	110	90	89	200	200	92	93
2000	1623	1653	238	258	1861	1912	110	110	90	89	200	200	92	93
2001	1623	1653	238	258	1861	1912	110	110	90	89	200	200	92	93
2002	1623	1653	238	258	1861	1912	110	110	90	89	200	200	92	93
2003	1623	1653	238	258	1861	1912	110	110	90	89	200	200	92	93
2004	1623	1653	238	258	1861	1912	110	110	90	89	200	200	92	93

UNCOMMITTED (2)

YEAR	CLAIMED CAPACITY (MW)						NETTED FROM LOAD CAPACITY (MW)					
	THERMAL		RENEWABLES		TOTALS		THERMAL		RENEWABLES		TOTALS	
	SUM.	WIN.(4)	SUM.	WIN.(4)	SUM.	WIN.(4)	SUM.	WIN.	SUM.	WIN.	SUM.	WIN.
1988	0	0	0	0	0	0	0	0	0	0	0	0
1989	0	5	0	0	0	5	0	0	0	0	0	0
1990	5	30	0	1	5	31	0	0	0	0	0	0
1991	234	858	1	1	235	859	0	0	0	2	0	2
1992	831	1114	1	1	832	1115	0	0	2	2	2	2
1993	1064	1394	1	1	1065	1395	0	0	2	2	2	2
1994	1344	1394	1	1	1345	1395	0	0	2	2	2	2
1995	1364	1394	1	1	1345	1395	0	0	2	2	2	2
1996	1344	1394	1	1	1345	1395	0	0	2	2	2	2
1997	1344	1394	1	1	1345	1395	0	0	2	2	2	2
1998	1344	1394	1	1	1345	1395	0	0	2	2	2	2
1999	1344	1394	1	1	1345	1395	0	0	2	2	2	2
2000	1344	1394	1	1	1345	1395	0	0	2	2	2	2
2001	1344	1394	1	1	1345	1395	0	0	2	2	2	2
2002	1344	1394	1	1	1345	1395	0	0	2	2	2	2
2003	1344	1394	1	1	1345	1395	0	0	2	2	2	2
2004	1344	1394	1	1	1345	1395	0	0	2	2	2	2

(1) STATUS CODES T,U,V, * (NEPOOL PLANNED); COUNTED TOWARD CAPABILITY IN SECTION I
(2) STATUS CODES L,P
(3) AVERAGE ANNUAL CAPACITY FACTOR AT 100%
(4) WINTER BEGINNING IN DECEMBER OF YEAR SHOWN

April 1, 1989

SECTION IV

PLANNED RETIREMENTS TO NEPOOL GENERATING CAPACITY

JANUARY 1989 THROUGH JANUARY 2005

OPERATING COMPANY	STATION	TYPE	FUEL	CAPABILITY - MW SUMMER	CAPABILITY - MW WINTER	CUMULATIVE CAPABILITY - MW SUMMER	CUMULATIVE CAPABILITY - MW WINTER	MONTH - YEAR
NORTHEAST UTILITIES	TUNNEL JET 10	JE	JP	17.20	21.80	17.20	21.80	11/ 1/ 1991 (1)
NORTHEAST UTILITIES	SILVER LAKE 11	GT	FO2	14.00	17.80	31.20	39.60	11/ 1/ 1991 (1)
NORTHEAST UTILITIES	SILVER LAKE 12	GT	FO2	14.00	17.80	45.20	57.40	11/ 1/ 1991 (1)
NORTHEAST UTILITIES	SILVER LAKE 13	GT	FO2	14.00	17.80	59.20	75.20	11/ 1/ 1991 (1)
NORTHEAST UTILITIES	TRACY 10	JE	JP	13.50	17.51	72.70	92.71	11/ 1/ 1991 (1)
NORTHEAST UTILITIES	WOODLAND ROAD 10	JE	JP	16.60	21.20	89.30	113.91	11/ 1/ 1991 (1)
NORTHEAST UTILITIES	DOREEN 10	JE	JP	16.60	21.20	105.90	135.11	11/ 1/ 1991 (1)
NORTHEAST UTILITIES	BRANFORD 10	JE	JP	17.20	22.00	123.10	157.11	11/ 1/ 1991 (1)
NORTHEAST UTILITIES	SILVER LAKE 10	GT	FO2	14.00	17.80	137.10	174.91	11/ 1/ 1991 (1)
NORTHEAST UTILITIES	FRANKLIN DRIVE 10	JE	JP	17.20	22.00	154.30	196.91	11/ 1/ 1991 (1)
NORTHEAST UTILITIES	TORRINGTON TERMINAL	JE	JP	17.20	21.80	171.50	218.71	11/ 1/ 1991 (1)
NORTHEAST UTILITIES	DEVON 3	ST	FO6	68.00	71.00	239.50	289.71	9/ 1/ 1992 (1) (2)
NORTHEAST UTILITIES	DEVON 4	ST	FO6	50.00	52.00	289.50	341.71	9/ 1/ 1992 (1) (2)
NORTHEAST UTILITIES	DEVON 5	ST	FO6	48.00	51.00	337.50	392.71	5/ 1/ 1993 (1) (2)
NORTHEAST UTILITIES	MIDDLETOWN 1	ST	FO6	69.50	73.00	407.00	465.71	5/ 1/ 1993 (1) (2)
NORTHEAST UTILITIES	DEVON 6	ST	FO6	68.00	71.00	475.00	536.71	5/ 1/ 1993 (1) (2)
COMMONWEALTH ELECTRIC SYSTEM	BLACKSTONE 4	ST	FO6	2.00	2.60	477.00	539.31	11/ 1/ 1993 (3)
COMMONWEALTH ELECTRIC SYSTEM	BLACKSTONE 3	ST	FO6	0.00	2.75	477.00	542.06	11/ 1/ 1993 (3)
PUBLIC SERVICE OF NEW HAMPSHIRE	SCHILLER 3	ST	FO6	0.00	26.88	477.00	568.94	11/ 1/ 1993 (3)
COMMONWEALTH ELECTRIC SYSTEM	BLACKSTONE 1	ST	FO6	13.50	16.00	490.50	584.94	11/ 1/ 1993 (3)
PUBLIC SERVICE OF NEW HAMPSHIRE	MERRIMACK JET 2	JE	FO1	19.80	24.20	510.30	609.14	11/ 1/ 1997 (3)
PUBLIC SERVICE OF NEW HAMPSHIRE	WHITE LAKE JET	JE	FO1	20.20	22.50	530.50	631.64	11/ 1/ 1997 (3)
PUBLIC SERVICE OF NEW HAMPSHIRE	SCHILLER JET	JE	FO1	19.40	24.30	549.90	655.94	11/ 1/ 1998 (3)
PUBLIC SERVICE OF NEW HAMPSHIRE	MERRIMACK JET 1	JE	FO1	17.00	24.70	566.90	680.64	11/ 1/ 1998 (3)
PUBLIC SERVICE OF NEW HAMPSHIRE	CONWAY DIESELS 1-3	IC	FO2	3.00	3.11	569.90	683.75	11/ 1/ 1998 (3)
PUBLIC SERVICE OF NEW HAMPSHIRE	LOST NATION GT	GT	FO2	16.10	20.40	586.00	704.15	11/ 1/ 1999 (3)
PUBLIC SERVICE OF NEW HAMPSHIRE	MERRIMACK STEAM 1	ST	COL	120.83	124.17	706.83	828.32	11/ 1/ 1999 (3)
CENTRAL MAINE POWER COMPANY	CAPE GT 4+5	GT	FO2	33.04	42.65	739.87	870.97	11/ 1/ 2000
PUBLIC SERVICE OF NEW HAMPSHIRE	SCHILLER 4	ST	COL	48.50	48.83	788.37	919.80	11/ 1/ 2002 (3)

(1) RETIREMENT MAY BE DEFERRED IF ADDITIONAL CAPACITY SALES ARE MADE.
(2) CANDIDATES FOR REPOWERING IN A COMBINED CYCLE CONFIGURATION.
(3) CANDIDATES FOR LIFE EXTENSION.

SECTION IV

UNITS NOT SCHEDULED FOR RETIREMENT BUT WHICH EXCEED GENERATION TASK FORCE (GTF) GUIDELINES DURING THE FORECAST PERIOD AND ARE CURRENTLY INCLUDED IN CAPABILITY

FOSSIL-FIRED THERMAL UNITS WITH RATINGS OF 50 MW OR LARGER

OPERATING COMPANY	STATION	TYPE	FUEL	CAPABILITY SUMMER MW	CAPABILITY WINTER MW	CUMULATIVE SUMMER MW	CUMULATIVE WINTER MW	GUIDELINE RETIREMENT YEAR
NEW ENGLAND ELECTRIC SYSTEM	SOUTH STREET STEAM	ST	FO6	99.3	100.0	99.3	100.0	1977
NEW ENGLAND ELECTRIC SYSTEM	MANCHESTER STREET 11	ST	FO6	46.0	46.3	145.3	146.3	1989
NEW ENGLAND ELECTRIC SYSTEM	SALEM HARBOR 1	ST	COL	82.5	84.0	227.8	230.3	1992 (1)
NEW ENGLAND ELECTRIC SYSTEM	SALEM HARBOR 2	ST	COL	79.7	80.0	307.5	310.3	1992 (1)
NORTHEAST UTILITIES	WEST SPRINGFIELD 1	ST	FO6	51.0	51.5	358.5	361.8	1992 (3)
NORTHEAST UTILITIES	WEST SPRINGFIELD 2	ST	FO6	51.0	51.5	409.5	413.3	1992 (3)
NORTHEAST UTILITIES	MONTVILLE 5	ST	FO6	77.9	78.8	487.4	492.1	1994 (3)
BOSTON EDISON COMPANY	MYSTIC STEAM 4	ST	FO6	135.0	139.9	622.4	632.0	1997
CENTRAL MAINE POWER COMPANY	W. F. WYMAN 1	ST	FO6	53.5	53.5	675.9	685.5	1997 (2)
UNITED ILLUMINATING COMPANY	BRIDGEPORT HARBOR 1	ST	FO6	82.0	82.0	757.9	767.5	1997
NORTHEAST UTILITIES	WEST SPRINGFIELD 3	ST	FO6	107.3	108.3	865.2	875.8	1997 (3)
NORTHEAST UTILITIES	MIDDLETOWN 2	ST	FO6	112.5	115.4	977.7	991.2	1997 (3)
CENTRAL MAINE POWER COMPANY	W. F. WYMAN 2	ST	FO6	53.5	53.5	1031.2	1044.7	1998 (2)
NEW ENGLAND ELECTRIC SYSTEM	SALEM HARBOR 3	ST	COL	152.0	151.8	1183.2	1196.5	1998 (1)
NORTHEAST UTILITIES	DEVON 7	ST	FO6	102.9	104.8	1286.1	1301.3	1998 (3)
NORTHEAST UTILITIES	DEVON 8	ST	FO6	102.9	104.8	1389.0	1406.1	1998 (3)
BOSTON EDISON COMPANY	MYSTIC STEAM 5	ST	FO6	142.0	141.2	1531.0	1547.3	1999
BOSTON EDISON COMPANY	MEDWAY 1	JE	FO2	35.9	60.6	1566.9	1607.9	2000
BOSTON EDISON COMPANY	MEDWAY 2	JE	FO2	49.4	59.4	1616.3	1667.3	2000
BOSTON EDISON COMPANY	MEDWAY 3	JE	FO2	43.7	58.8	1660.0	1726.1	2000
BOSTON EDISON COMPANY	MYSTIC STEAM 6	ST	FO6	141.2	145.0	1801.2	1871.1	2001
UNITED ILLUMINATING COMPANY	BRIDGEPORT HARBOR 2	ST	FO6	170.0	176.0	1971.2	2047.1	2001
NORTHEAST UTILITIES	NORWALK HARBOR 1	ST	FO6	155.7	157.7	2126.9	2204.8	2003 (3)
NORTHEAST UTILITIES	NORWALK HARBOR 2	ST	FO6	164.4	167.3	2291.3	2372.1	2003 (3)
NORTHEAST UTILITIES	MIDDLETOWN 3	ST	FO6	224.0	230.7	2515.3	2602.8	2003 (3)
EASTERN UTILITIES ASSOC.	SOMERSET STEAM 5	ST	COL	72.7	73.0	2588.0	2675.8	2003 (4)
VERMONT GROUP	BERLIN JET	JE	FO1	44.4	56.5	2632.4	2732.3	2004
EASTERN UTILITIES ASSOC.	SOMERSET STEAM 6	ST	COL	110.5	113.7	2742.9	2846.0	2004 (5)
TAUNTON MUNICIPAL LIGHT DEPT.	CLEARY CC 9	CC	OIL	105.0	110.0	2847.9	2956.0	2005

(1) UNITS CONVERTED TO COAL ARE LIFE EXTENSION CANDIDATES.
(2) CANDIDATES FOR LIFE EXTENSION.
(3) NU HAS NO PLANS TO RETIRE THESE UNITS.
(4) UNIT LIFE EXTENDED DURING COAL CONVERSION IN 1983. GUIDELINE RETIREMENT YEAR WAS 1991.
(5) UNIT LIFE EXTENDED DURING COAL CONVERSION IN 1984. GUIDELINE RETIREMENT YEAR WAS 1999.

SECTION IV

UNITS NOT SCHEDULED FOR RETIREMENT BUT WHICH EXCEED GENERATION TASK FORCE (GTF) GUIDELINES DURING THE FORECAST PERIOD AND ARE CURRENTLY INCLUDED IN CAPABILITY

FOSSIL-FIRED THERMAL UNITS WITH RATINGS OF LESS THAN 50 MW (1)

OPERATING COMPANY	STATION	TYPE	FUEL	CAPABILITY SUMMER MW	WINTER MW	CUMULATIVE SUMMER MW	WINTER MW	GUIDELINE RETIREMENT YEAR
NEW ENGLAND ELECTRIC SYSTEM	MANCHESTER STREET 9	ST	FO6	42.2	44.3	42.2	44.3	1981
NEW ENGLAND ELECTRIC SYSTEM	MANCHESTER STREET 10	ST	FO6	45.3	46.3	87.5	90.6	1987
COMMONWEALTH ELECTRIC SYSTEM	CANNON STREET 1	ST	FO6	25.0	25.4	112.5	116.0	1987 (2)
UNITED ILLUMINATING COMPANY	ENGLISH 7	ST	FO6	34.1	35.0	146.6	151.0	1988
HOLYOKE GAS + ELECTRIC DEPT.	CABOT 6 & 8	ST	FO6	18.0	18.0	164.6	169.0	1989
COMMONWEALTH ELECTRIC SYSTEM	CANNON STREET 2	ST	FO6	34.0	35.2	198.6	204.2	1990 (2)
COMMONWEALTH ELECTRIC SYSTEM	KENDALL STEAM 1+2	ST	FO6	37.0	43.0	235.6	247.2	1990 (2)
VERMONT GROUP	ASCUTNEY GT	GT	FO2	10.1	14.7	245.7	261.9	1991 (4)
NORTHEAST UTILITIES	DEVON 10	JE	JP	16.5	18.5	262.2	280.4	1991 (3)
NORTHEAST UTILITIES	MIDDLETOWN 10	JE	JP	16.5	21.2	278.7	301.6	1991 (3)
NORTHEAST UTILITIES	MONTVILLE 10 & 11	IC	FO2	5.3	5.3	284.0	306.9	1991 (3)
NORTHEAST UTILITIES	NORWALK 10	GT	FO2	11.8	16.3	295.8	323.2	1991 (3)
UNITED ILLUMINATING COMPANY	ENGLISH 8	ST	FO6	37.0	39.5	332.8	362.7	1992
VERMONT GROUP	RUTLAND 5 GT	GT	FO2	10.4	14.1	343.2	376.8	1993 (4)
CONNECTICUT MUNICIPALS	WALLINGFORD STEAM	ST	FO4	22.5	24.0	365.7	400.8	1993
NORTHEAST UTILITIES	WEST SPRINGFIELD 10	JE	JP	17.2	22.0	382.9	422.8	1993 (3)
BANGOR HYDRO-ELECTRIC COMPANY	GRAHAM 3	ST	FO6	11.7	12.6	394.6	435.4	1994
NORTHEAST UTILITIES	COS COB 10	JE	JP	19.0	24.0	413.6	459.4	1994 (3)
NORTHEAST UTILITIES	COS COB 11	JE	JP	18.8	24.0	432.4	483.4	1994 (3)
NORTHEAST UTILITIES	COS COB 12	JE	JP	19.0	24.0	451.4	507.4	1994 (3)
VERMONT GROUP	GORGE GT	GT	FO2	10.0	15.5	461.4	522.9	1995 (4)
NORTHEAST UTILITIES	SOUTH MEADOW 11	JE	JP	38.8	49.0	500.2	571.9	1995 (3)
NORTHEAST UTILITIES	SOUTH MEADOW 12	JE	JP	39.0	49.0	539.2	620.9	1995 (3)
NORTHEAST UTILITIES	SOUTH MEADOW 13	JE	JP	39.0	49.0	578.2	669.9	1995 (3)
NORTHEAST UTILITIES	SOUTH MEADOW 14	JE	JP	39.0	49.0	617.2	718.9	1995 (3)
BOSTON EDISON COMPANY	L STREET JET	JE	FO2	17.3	21.7	634.5	740.6	1996
UNITED ILLUMINATING COMPANY	BRIDGEPORT HARBOR 4	JE	JP	17.1	22.0	651.6	762.6	1997
BANGOR HYDRO-ELECTRIC COMPANY	GRAHAM 4	ST	FO6	17.7	18.2	669.3	780.8	1997
COMMONWEALTH ELECTRIC SYSTEM	KENDALL STEAM 3	ST	FO6	26.0	29.0	695.3	809.8	1998 (2)
BOSTON EDISON COMPANY	FRAMINGHAM 2 & 3	JE	FO2	22.6	30.0	717.9	839.8	1999
BOSTON EDISON COMPANY	MYSTIC JET	JE	FO2	10.0	15.0	727.9	854.8	1999
BOSTON EDISON COMPANY	EDGAR JET 1 & 2	JE	FO2	22.9	28.4	750.8	883.2	1999
BOSTON EDISON COMPANY	FRAMINGHAM 1	JE	FO2	11.6	15.0	762.4	898.2	1999
COMMONWEALTH ELECTRIC SYSTEM	KENDALL JET 1	JE	FO1	19.0	24.0	781.4	922.2	2000 (2)
EASTERN UTILITIES ASSOC.	SOMERSET JET 1	JE	FO1	14.5	22.3	795.9	944.5	2000
PEABODY MUNICIPAL LIGHT DEPT.	WATERS RIVER GT	GT	FO2	14.0	20.0	809.9	964.5	2001
VERMONT GROUP	BURLINGTON JET	JE	FO2	18.7	23.9	828.6	988.4	2001 (5)
EASTERN UTILITIES ASSOC.	SOMERSET JET 2	JE	FO1	20.7	24.7	849.3	1013.1	2001
FITCHBURG GAS AND ELEC. CO.	FITCHBURG 7	GT	FO2	20.3	26.6	869.6	1039.7	2002
CONNECTICUT MUNICIPALS	NORTH MAIN	GT	FO2	15.3	18.4	884.9	1058.1	2002
COMMONWEALTH ELECTRIC SYSTEM	KENDALL JET 2	JE	FO1	19.0	24.0	903.9	1082.1	2002 (2)
BANGOR HYDRO-ELECTRIC COMPANY	GRAHAM 5	ST	FO6	27.6	29.0	931.5	1111.1	2004

(1) DIESEL UNITS ARE INCLUDED IN CAPABILITY IN SECTION I BUT NOT HERE SINCE NO GTF RETIREMENT GUIDELINE EXISTS.
(2) CANDIDATES FOR LIFE EXTENSION.
(3) THESE UNITS WILL EITHER BE REFURBISHED OR REPLACED IN KIND TO MAINTAIN SYSTEM RELIABILITY AND STATION BLACK START CAPABILITY.
(4) THESE UNITS WILL NOT BE RETIRED UNTIL 2005 DUE TO THE UTILITY'S INTENTION TO REFURBISH THE UNIT THROUGH EXTENDED MAINTENANCE.
(5) THIS UNIT WILL EXCEED THE GUIDELINE RETIREMENT DATE SINCE THE UNIT HAS BEEN ALMOST COMPLETELY REBUILT INCLUDING A NEW EXHAUST STACK (1988).

SECTION IV

SCHEDULED RERATINGS OF EXISTING NEPOOL GENERATION CAPACITY

JANUARY 1989 THROUGH JANUARY 2005

OPERATING COMPANY	STATION	TYPE	FUEL	CHANGES IN CAPABILITY - MW SUMMER	CHANGES IN CAPABILITY - MW WINTER	CAPABILITY - MW SUMMER	CAPABILITY - MW WINTER	MONTH - YEAR
VERMONT GROUP	NUG HYDRO - VTGP	PH		1.25	1.25	34.97	42.13	2/ 1/ 1989
NEW ENGLAND ELECTRIC SYSTEM	NUG THERMAL - NEES	PF		0.18	0.18	118.99	126.26	2/ 1/ 1989
NORTHEAST UTILITIES	NUG THERMAL - NU	PF		9.20	9.20	147.65	147.65	2/ 1/ 1989
VERMONT GROUP	VERMONT HYDRO	HY		9.42	14.63	118.05	128.68	2/ 1/ 1989
PUBLIC SERVICE OF NEW HAMPSHIRE	SCHILLER 6	ST	COL	0.00	0.83	50.50	51.33	2/ 1/ 1989
CENTRAL MAINE POWER COMPANY	NUG HYDRO - CMP	PH		17.00	17.00	72.23	72.38	2/ 1/ 1989
NEW ENGLAND ELECTRIC SYSTEM	NUG HYDRO - NEES	PH		1.50	1.50	26.98	27.51	2/ 1/ 1989
NORTHEAST UTILITIES	NUG HYDRO - NU	PH		6.16	6.16	6.16	6.16	2/ 1/ 1989
FITCHBURG GAS AND ELECTRIC COMPANY	FITCHBURG 7	GT	FO2	-0.85	0.38	19.40	26.96	2/ 1/ 1989
NORTHEAST UTILITIES	NORTHFIELD 3	PS		20.00	20.00	270.00	270.00	3/ 1/ 1989
NORTHEAST UTILITIES	NORTHFIELD 2	PS		20.00	20.00	270.00	270.00	3/ 1/ 1989
NORTHEAST UTILITIES	NORTHFIELD 4	PS		20.00	20.00	270.00	270.00	3/ 1/ 1989
NORTHEAST UTILITIES	NORTHFIELD 1	PS		20.00	20.00	270.00	270.00	3/ 1/ 1989
UNITIL POWER CORPORATION	NUG THERMAL - UNITIL	PF		0.75	2.00	34.35	35.60	3/ 1/ 1989
CENTRAL MAINE POWER COMPANY	NUG HYDRO - CMP	PH		13.10	13.10	85.33	85.48	3/ 1/ 1989
BOSTON EDISON COMPANY	NUG HYDRO - BECO	PH		0.75	0.75	1.80	1.80	3/20/ 1989
VERMONT GROUP	NUG HYDRO - VTGP	PH		0.40	0.40	35.37	42.53	4/ 1/ 1989
NEW ENGLAND ELECTRIC SYSTEM	NUG THERMAL - NEES	PF		40.00	40.00	158.99	166.26	5/ 1/ 1989
NORTHEAST UTILITIES	NUG THERMAL - NU	PF		4.10	4.10	151.75	151.75	5/ 1/ 1989
CENTRAL MAINE POWER COMPANY	NUG THERMAL - CMP	PF		5.80	5.80	142.52	151.89	5/ 1/ 1989
BOSTON EDISON COMPANY	PILGRIM 1	NB	UR	670.00	670.00	670.00	670.00	5/ 1/ 1989
BOSTON EDISON COMPANY	NUG THERMAL - BECO	PF		22.80	22.80	49.10	58.30	6/ 1/ 1989
BOSTON EDISON COMPANY	NUG THERMAL - BECO	PF		11.00	11.00	60.10	69.30	7/ 1/ 1989
UNITIL POWER CORPORATION	NUG THERMAL - UNITIL	PF		20.80	21.30	55.15	56.90	8/ 1/ 1989
PUBLIC SERVICE OF NEW HAMPSHIRE	NUG THERMAL - PSNH	PF		12.00	12.00	126.01	127.24	9/ 1/ 1989
CENTRAL MAINE POWER COMPANY	NUG THERMAL - CMP	PF		36.80	36.80	179.32	188.69	10/ 1/ 1989
NORTHEAST UTILITIES	NUG THERMAL - NU	PF		180.00	180.00	331.75	331.75	10/ 1/ 1989
VERMONT GROUP	NUG HYDRO - VTGP	PH		0.15	0.15	35.52	42.68	11/ 1/ 1989
NEW ENGLAND ELECTRIC SYSTEM	NUG THERMAL - NEES	PF		12.00	12.00	170.99	178.26	12/ 1/ 1989
NORTHEAST UTILITIES	NUG THERMAL - NU	PF		46.50	47.50	378.25	379.25	1/ 1/ 1990
CENTRAL MAINE POWER COMPANY	NUG THERMAL - CMP	PF		3.40	3.40	182.72	192.09	1/ 1/ 1990
COMMONWEALTH ELECTRIC SYSTEM	NUG THERMAL - CES	PF		34.60	34.60	107.58	107.58	2/ 1/ 1990
CENTRAL MAINE POWER COMPANY	NUG THERMAL - CMP	PF		29.00	29.00	211.72	221.09	5/ 1/ 1990
UNITIL POWER CORPORATION	NUG THERMAL - UNITIL	PF		27.00	27.00	82.15	83.90	6/ 1/ 1990
NEW ENGLAND ELECTRIC SYSTEM	NUG THERMAL - NEES	PF		161.00	161.00	331.99	339.26	7/ 1/ 1990
CENTRAL MAINE POWER COMPANY	NUG HYDRO - CMP	PH		1.70	1.70	87.03	87.18	9/ 1/ 1990
NORTHEAST UTILITIES	NUG THERMAL - NU	PF		53.50	54.00	431.75	433.25	10/ 1/ 1990
VERMONT GROUP	NUG HYDRO - VTGP	PH		0.37	0.37	35.89	43.05	11/ 1/ 1990
UNITIL POWER CORPORATION	NUG THERMAL - UNITIL	PF		18.50	19.00	100.65	102.90	11/ 1/ 1990
NORTHEAST UTILITIES	NUG THERMAL - NU	PF		37.50	37.50	469.25	470.75	1/ 1/ 1991
VERMONT GROUP	NUG HYDRO - VTGP	PH		2.50	4.00	38.39	47.05	6/ 1/ 1991
NORTHEAST UTILITIES	NUG THERMAL - NU	PF		37.95	37.85	507.20	508.60	7/ 1/ 1991
VERMONT GROUP	NUG HYDRO - VTGP	PH		5.00	5.00	43.39	52.05	11/ 1/ 1991
NORTHEAST UTILITIES	NUG THERMAL - NU	PF		32.20	32.20	539.40	540.80	1/ 1/ 1992
NORTHEAST UTILITIES	NUG THERMAL - NU	PF		0.85	0.85	540.25	541.65	11/ 1/ 1993
FITCHBURG GAS AND ELECTRIC COMPANY	FITCHBURG 7	GT	FO2	-19.40	-26.96	0.00	0.00	8/ 1/ 1997

SECTION IV

ADDITIONS AND CHANGES TO NEPOOL CAPACITY PURCHASES AND SALES

JANUARY 1989 THROUGH JANUARY 2005

RECEIVING SYSTEM	SUPPLYING SYSTEM	TYPE	STATUS (1)	CHANGES IN CAPABILITY - MW SUMMER	CHANGES IN CAPABILITY - MW WINTER	CAPABILITY - MW SUMMER	CAPABILITY - MW WINTER	MONTH - YEAR
PURCHASES								
NEW ENGLAND ELECTRIC SYSTEM	PSEG	PP		-75.00	-75.00	0.00	0.00	5/ 1/ 1989
UNITED ILLUMINATING COMPANY	NIAGARA MOHAWK	PP		80.00	80.00	80.00	80.00	5/ 1/ 1989
UNITED ILLUMINATING COMPANY	CENTRAL HUDSON	PP		-25.00	-25.00	0.00	0.00	5/ 1/ 1989
NEW ENGLAND ELECTRIC SYSTEM	NIAGARA MOHAWK	PP		-150.00	-150.00	0.00	0.00	5/ 1/ 1989
NORTHEAST UTILITIES	PSEG	PP		0.00	-65.00	0.00	0.00	5/ 1/ 1989
NEW ENGLAND ELECTRIC SYSTEM	NYSEG	PP		-75.00	-75.00	0.00	0.00	5/ 1/ 1989
VERMONT GROUP	ONTARIO HYDRO	PP		6.45	6.45	88.00	88.00	7/ 1/ 1989
N.E./N.Y. BORDER STATES	NYPA PURCHASE (2)	PP		-5.40	-5.40	165.80	165.80	7/ 1/ 1989
VERMONT GROUP	HQ-SO. CANADA PUR.	PP		6.00	6.00	36.00	40.00	10/ 1/ 1989
PUBLIC SERVICE OF NEW HAMPSHIRE	CENTRAL HUDSON	PP		-25.00	-25.00	0.00	0.00	10/31/ 1989
CENTRAL MAINE POWER COMPANY	NEW BRUNSWICK	PP		-60.00	-60.00	0.00	0.00	10/31/ 1989
PUBLIC SERVICE OF NEW HAMPSHIRE	NEW BRUNSWICK	PP		-60.00	-60.00	0.00	0.00	10/31/ 1989
NORTHEAST UTILITIES	P P AND L	PP		157.00	157.00	157.00	157.00	11/ 1/ 1989
VERMONT GROUP	HQ OTHER 2	PP		57.00	57.00	57.00	57.00	5/ 1/ 1990
N.E./N.Y. BORDER STATES	NYPA PURCHASE (2)	PP		-5.20	-5.20	160.60	160.60	7/ 1/ 1990
VERMONT GROUP	ONTARIO HYDRO	PP		7.00	7.00	95.00	95.00	7/ 1/ 1990
VERMONT GROUP	HQ OTHER 1	PP		-54.00	-54.00	0.00	0.00	8/31/ 1990
VERMONT GROUP	HQ OTHER 2	PP		-57.00	-57.00	0.00	0.00	8/31/ 1990
NEPOOL	HQ PHASE II (3)	PP	L*	1500.00	525.00	1500.00	525.00	9/ 1/ 1990
VERMONT GROUP	ONTARIO HYDRO	PP		8.00	8.00	103.00	103.00	7/ 1/ 1991
N.E./N.Y. BORDER STATES	NYPA PURCHASE (2)	PP		-5.50	-5.50	155.10	155.10	7/ 1/ 1991
NORTHEAST UTILITIES	P P AND L	PP		-157.00	-157.00	0.00	0.00	10/31/ 1991
CENTRAL MAINE POWER COMPANY	NEW BRUNSWICK	PP		-150.00	-150.00	0.00	0.00	10/31/ 1991
BOSTON EDISON COMPANY	NB-POINT LEPREAU 1	PP		-100.00	-100.00	0.00	0.00	10/31/ 1991
COMMONWEALTH ELECTRIC SYSTEM	POINT LEPREAU 1	PP		-25.00	-25.00	0.00	0.00	10/31/ 1991
BANGOR HYDRO ELECTRIC COMPANY	NEW BRUNSWICK	PP		-24.00	-24.00	0.00	0.00	10/31/ 1991
UNITIL POWER CORPORATION	NEW BRUNS. - UNITIL	PP		-6.00	-6.00	0.00	0.00	10/31/ 1991
VERMONT GROUP	C M G AND E	PP		-20.00	-20.00	0.00	0.00	10/31/ 1991

(1) CURRENT PURCHASES WITH NO STATUS CODE USE EXISTING TRANSMISSION LINES. CURRENT PURCHASES AND FUTURE TRANSMISSION WITH STATUS CODE T,U,V AND ALL ASTERISK ITEMS ARE INCLUDED IN CAPABILITY TOTALS (SEE APPENDIX-A FOR DEFINITIONS).
(2) FOR EACH YEAR THE NYPA PURCHASE REFLECTS 2% LINE LOSSES INCURRED BEFORE REACHING NEW ENGLAND.
(3) THE INTERCONNECTED CAPACITY EQUIVALENT OF THE FIRM ENERGY CONTRACT.

SECTION IV

ADDITIONS AND CHANGES TO NEPOOL CAPACITY PURCHASES AND SALES

JANUARY 1989 THROUGH JANUARY 2005

RECEIVING SYSTEM	SUPPLYING SYSTEM	TYPE	STATUS (1)	CHANGES IN CAPABILITY - MW SUMMER	CHANGES IN CAPABILITY - MW WINTER	CAPABILITY - MW SUMMER	CAPABILITY - MW WINTER	MONTH - YEAR
PURCHASES CONTINUED								
N.E./N.Y. BORDER STATES	NYPA PURCHASE (2)	PP		-5.40	-5.40	149.70	149.70	7/ 1/ 1992
VERMONT GROUP	ONTARIO HYDRO	PP		7.00	7.00	110.00	110.00	7/ 1/ 1992
VERMONT GROUP	ONTARIO HYDRO	PP		7.00	7.00	117.00	117.00	7/ 1/ 1993
N.E./N.Y. BORDER STATES	NYPA PURCHASE	PP		-5.30	-5.30	144.40	144.40	7/ 1/ 1993
MASS. MUNICIPAL WHOLESALE ELECTRIC	POINT LEPREAU 1	PP		-50.00	-50.00	50.00	50.00	10/31/ 1993
VERMONT GROUP	R G AND E	PP		-50.00	-50.00	0.00	0.00	10/31/ 1993
UNITED ILLUMINATING COMPANY	NIAGARA MOHAWK	PP		-80.00	-80.00	0.00	0.00	5/ 1/ 1994
N.E./N.Y. BORDER STATES	NYPA PURCHASE (2)	PP		-5.40	-5.40	139.00	139.00	7/ 1/ 1994
VERMONT GROUP	ONTARIO HYDRO	PP		8.00	8.00	125.00	125.00	7/ 1/ 1994
MASS. MUNICIPAL WHOLESALE ELECTRIC	POINT LEPREAU 1	PP		-50.00	-50.00	0.00	0.00	10/31/ 1994
VERMONT GROUP	ONTARIO HYDRO	PP		7.00	7.00	132.00	132.00	7/ 1/ 1995
NEPOOL	HQ PHASE II (3)	PP	L*	-1500.00	-525.00	0.00	0.00	8/31/ 2000
VERMONT GROUP	HQ OTHER 2	PP		57.00	57.00	57.00	57.00	9/ 1/ 2000
VERMONT GROUP	HQ OTHER 4	PP		77.00	77.00	77.00	77.00	9/ 1/ 2000
VERMONT GROUP	HQ OTHER 3	PP		58.00	58.00	58.00	58.00	9/ 1/ 2000
VERMONT GROUP	HQ OTHER 5	PP		39.00	39.00	39.00	39.00	9/ 1/ 2000
VERMONT GROUP	HQ OTHER 6	PP		19.00	19.00	19.00	19.00	9/ 1/ 2000
VERMONT GROUP	HQ-SO. CANADA PUR.	PP		0.00	4.00	36.00	44.00	10/ 1/ 2003
CAPACITY SALES								
MAINE MUNICIPALS	SEABROOK 1 (4)	SP	V*	2.50	2.50	2.50	2.50	1/ 1/ 1990
NEW HAMPSHIRE MUNICIPALS	SEABROOK 1 (4)	SP	V*	25.00	25.00	25.00	25.00	1/ 1/ 1990

(1) CURRENT PURCHASES WITH NO STATUS CODE USE EXISTING TRANSMISSION LINES. CURRENT PURCHASES AND FUTURE TRANSMISSION WITH STATUS CODE T,U,V AND ALL ASTERISK ITEMS ARE INCLUDED IN CAPABILITY TOTALS (SEE APPENDIX-A FOR DEFINITIONS).
(2) FOR EACH YEAR THE NYPA PURCHASE REFLECTS 2% LINE LOSSES INCURRED BEFORE REACHING NEW ENGLAND.
(3) THE INTERCONNECTED CAPACITY EQUIVALENT OF THE FIRM ENERGY CONTRACT.
(4) PSNH IS UNABLE TO PREDICT WHEN THE SEABROOK PLANT WILL BE PERMITTED TO COMMENCE OPERATION. HOWEVER, FOR PLANNING PURPOSES, NEPLAN IS ASSUMING COMMERCIAL OPERATION BY JANUARY 1, 1990.

SECTION IV

DEACTIVATED UNITS REMOVED FROM NEPOOL CAPABILITY

OPERATING COMPANY	STATION	TYPE	FUEL	CAPABILITY - MW SUMMER	CAPABILITY - MW WINTER	MONTH - YEAR
EASTERN UTILITIES ASSOCIATES SYSTEM	SOMERSET STEAM 2	ST	FO6	40.90	44.00	5/ 1/ 1976
EASTERN UTILITIES ASSOCIATES SYSTEM	SOMERSET STEAM 1	ST	FO6	36.48	37.49	5/ 1/ 1976
EASTERN UTILITIES ASSOCIATES SYSTEM	SOMERSET STEAM 3+4	ST	FO6	61.20	64.77	1/ 1/ 1980
HOLYOKE GAS AND ELECTRIC DEPARTMENT	CABOT 9	ST	FO6	4.80	4.80	12/ 1/ 1981
UNITED ILLUMINATING COMPANY	STEEL POINT 11	ST	FO6	35.00	33.48	10/ 1/ 1982
UNITED ILLUMINATING COMPANY	STEEL POINT 9	ST	FO6	27.70	24.68	10/ 1/ 1982
MARBLEHEAD MUNICIPAL LIGHT DEPT.	COMMERCIAL STREET 2	IC	FO2	1.00	1.00	11/ 1/ 1983
CENTRAL MAINE POWER COMPANY	MASON 2	ST	FO6	22.20	22.80	11/ 1/ 1983
CENTRAL MAINE POWER COMPANY	MASON 1	ST	FO6	21.12	21.90	11/ 1/ 1983
				250.40	254.92	

UNITS SCHEDULED FOR DEACTIVATED RESERVE

CENTRAL MAINE POWER COMPANY	MASON 3	ST	FO6	32.00	32.00	10/ 1/ 1993
CENTRAL MAINE POWER COMPANY	MASON 4	ST	FO6	32.00	32.00	10/ 1/ 1993
CENTRAL MAINE POWER COMPANY	MASON 5	ST	FO6	33.00	33.00	10/ 1/ 1993

SECTION IV

UNITS RETURNING TO SERVICE

OPERATING COMPANY	STATION	TYPE	FUEL	CAPABILITY - MW SUMMER	CAPABILITY - MW WINTER	MONTH - YEAR
RETURNED TO SERVICE FROM DEACTIVATED STATUS						
CENTRAL MAINE POWER COMPANY	MASON 3	ST	FO6	32.00	32.00	8/ 1/ 1988
CENTRAL MAINE POWER COMPANY	MASON 4	ST	FO6	32.00	32.00	9/ 1/ 1988
CENTRAL MAINE POWER COMPANY	MASON 5	ST	FO6	33.00	33.00	11/ 1/ 1988
RETURNED TO SERVICE FROM RETIRED STATUS						
NORTHEAST UTILITIES	BRANFORD	JE	FO1	17.20	22.00	11/ 1/ 1988
NORTHEAST UTILITIES	SILVER LAKE 10	GT	FO2	14.00	17.80	11/ 1/ 1988
NORTHEAST UTILITIES	SILVER LAKE 11	GT	FO2	14.00	17.80	11/ 1/ 1988
NORTHEAST UTILITIES	SILVER LAKE 13	GT	FO2	14.00	17.80	11/ 1/ 1988
NORTHEAST UTILITIES	TRACY GT	GT	FO2	13.50	17.50	5/ 1/ 1989

SECTION V

LIST OF PROPOSED BULK POWER LINES

LINE OWNERSHIP LIST 01	TERMINALS 02		LINE LENGTH MILES 03	EXPECTED SERVICE DATE 04		NOMINAL VOLTAGE IN KV OPER. 05	NOMINAL VOLTAGE IN KV DESIGN 06
				YEAR/PRIOR TO*			
NEES	COMERFORD STATION MONROE, NH	SANDY POND S/S AYER, MA	133.1	1990	W	450	450
COMW	BOURNE S/S BOURNE, MA	BARNSTABLE S/S BARNSTABLE, MA	16.7	1989	S	115	345
BOEC	MYSTIC STATION EVERETT, MA	KINGSTON ST. S/S BOSTON, MA	4.0	1989	S	345	345
NEES	MILLBURY S/S MILLBURY, MA	WEST MEDWAY S/S MEDWAY, MA	16.0	1990	S	345	345
NEES	SANDY POND S/S AYER, MA	MILLBURY S/S MILLBURY, MA	36.0	1990	S	345	345
BAHE	ORRINGTON S/S	MAINE/NEW BRUNSWICK BORDER	82.0	1991	W	345	345
BOEC	MYSTIC STATION EVERETT, MA	KINGSTON ST. S/S BOSTON, MA	4.0	1992	S	345	345
NEES	SHERMAN ROAD S/S BURRILVILLE, RI	KENT COUNTY S/S WARWICK, RI	44.0	1994	S	345	345
NEES	TEWKSBURY S/S TEWKSBURY, MA	GOLDEN HILLS S/S SAUGUS, MA	17.7	1994	S	345	345
VTGP	**COOLIDGE S/S CAVENDISH, VT	W. RUTLAND S/S W. RUTLAND, VT	27.4	1994	W	345	345
NEES	MANCHESTER ST.STATION PROVIDENCE, RI	JOHNSTON S/S JOHNSTON, RI	6.8	1995	S	345	345
NEES	MANCHESTER ST.SATATION PROVIDENCE, RI	JOHNSTON S/S JOHNSTON, RI	6.8	1995	S	345	345
BOEC	WEST WALPOLE S/S WALPOLE, MA	NEEDHAM S/S NEEDHAM, MA	10.7	1996	S	345	345
NOEU	HAMPDEN JCT. HAMPDEN, MA	AGAWAM S/S AGAWAM, MA	11.9	1998	S	345	345
NOEU/UNIC	E. WALLINGFORD WALLINGFORD, CT	E. DEVON JCT. STRATFORD, CT	28.2	2003	S	345	345

* S - SUMMER PEAK PERIOD; W - WINTER PEAK PERIOD

** OPERATES AT 115 KV PRESENTLY

SECTION V

LIST OF PROPOSED BULK POWER LINES

LINE OWNERSHIP LIST	TERMINALS		LINE LENGTH MILES	EXPECTED SERVICE DATE		NOMINAL VOLTAGE IN KV OPER.	DESIGN
01	02		03	04		05	06
				YEAR/PRIOR TO*			
VTGP	GRANITE S/S WILLIAMSTOWN, VT	MIDDLESEX S/S MORETOWN, VT	16.0	1990	S	115	230
VTGP	MIDDLESEX S/S MORETOWN, VT	CHAMPLAIN S/S ESSEX, VT	25.0	1997	W	230	230
VTGP	MOSHER TAP NEWPORT, VT	IRASBURG S/S IRASBURG, VT	10.5	1990	S	120	120
VTGP	MOSHER TAP NEWPORT, VT	HIGHGATE S/S HIGHGATE, VT	30.5	1990	S	120	120
VTGP	BORDER S/S DERBY, VT	NEWPORT S/S NEWPORT, VT	7.5	1990	W	120	120
VTGP	NEWPORT S/S NEWPORT, VT	MOSHER S/S NEWPORT, VT	3.0	1990	W	120	120
NOEU	**SOUTHINGTON S/S SOUTHINGTON, CT	COOK HILL JCT. CHESIRE, CT	10.7	1989	S	115	115
COMW	NORTH CAMBRIDGE S/S CAMBRIDGE, MA	BLACKSTONE S/S CAMBRIDGE, MA	3.7	1989	S	115	115
UNIC	**WOODMONT S/S MILFORD, CT	MILVON S/S MILFORD, CT	4.1	1989	S	115	115
NOEU	DEXTER CORP. COGEN WINDSOR LOCKS, CT	WINDSOR LOCKS S/S WINDSOR LOCKS, CT	0.4	1989	W	115	115
CEMP	WEST BUXTON BUXTON, ME	SANFORD SANFORD, ME	17.3	1989	W	***34	115
CEMP	BOLT HILL S/S ELIOT,ME	YORK S/S YORK,MR	10.0	1989	W	115	115
CEMP	SECTION 86 TAP ROCKPORT, ME	MEADOW ROAD S/S ROCKPORT, ME	4.0	1989	W	115	115
CEMP	SECTION 250 BIDDEFORD, ME	BIDDEFORD INDUSTRIAL PARK BIDDEFORD, ME	4.0	1989	W	115	115
NEES	TEWKSBURY JCT. TEWKSBURY, MA	SOUTH BROADWAY S/S LAWRENCE, MA	5.2	1990	S	115	115

* S - SUMMER PEAK PERIOD; W - WINTER PEAK PERIOD
** REBUILD,RECONDUCTOR,UPGRADE VOLTAGE, OR BUNDLE EXISTING CIRCUITS
*** OPERATES AT 34 KV UNTIL 1991

APRIL 1, 1989

SECTION V

LIST OF PROPOSED BULK POWER LINES

LINE OWNERSHIP LIST	TERMINALS		LINE LENGTH MILES	EXPECTED SERVICE DATE		NOMINAL VOLTAGE IN KV OPER.	DESIGN
01	02		03	04		05	06
				YEAR/PRIOR TO*			
BOEC	CONGRESS ST. TAP BOSTON, MA	CHATHAM ST. S/S BOSTON, MA	0.8	1990	S	115	115
BOEC	CONGRESS ST. TAP BOSTON, MA	CHATHAM ST. S/S BOSTON, MA	0.8	1990	S	115	115
NOEU	**DOREEN S/S PITTSFIELD, MA	G.E.CO. PITTSFIELD, MA	1.2	1990	S	115	115
NOEU	**FARMINGTON S/S FARMINGTON, CT	NO. BLOOMFILED S/S BLOOMFIELD, CT	11.7	1990	S	115	115
NOEU	**FROST BRIDGE S/S WATERTOWN, CT	STEVENSON STATION MONROE, CT	17.5	1990	S	115	115
NOEU	**FROST BRIDGE S/S WATERTOWN, CT	BALDWIN JCT. MIDDLEBURY, CT	7.1	1990	S	115	115
NOEU	**BALDWIN JCT. MIDDLEBURY, CT	STEVENSON STATION MONROE, CT	10.4	1990	S	115	115
CEMP	SOUTH GORHAM S/S GORHAM, ME	WEST BUXTON BUXTON, ME	10.0	1990	W	115	115
CEMP	YORK S/S YORK, ME	BRANCH BROOK S/S	16.0	1990	W	115	115
CEMP	SECTION 204 TAP NEWCASTLE, ME	NEWCASTLE S/S NEWCASTLE, ME	4.0	1990	W	115	115
CEMP	ARS GROUP S.P.P. STRATTON, ME	BIGELOW S/S STRATTON, ME	5.3	1990	W	115	115
NOEU	**BROOKFIELD JCT. BROOKFIELD, CT	STONY HILL S/S BROOKFIELD, CT	0.7	1990	W	115	115
NOEU	O'BRIEN (NSSCO) COGEN HARTFORD, CT	1704 LINE HARTFORD, CT	0.7	1990	W	115	115
NOEU	EXETER ENERGY S.P.P. PLAINFIELD, CT	LINE 81505 STERLING, CT	7.3	1990	W	115	115
PSNH	WHITE LAKE S/S TAMWORTH, NH	SACO VALLEY S/S CONWAY, NH	11.5	1990	W	115	115

* S - SUMMER PEAK PERIOD; W - WINTER PEAK PERIOD
** RECONDUCTOR,REBUILD,UPGRADE VOLTAGE, OR BUNDLE EXISTING CIRCUITS

SECTION V

LIST OF PROPOSED BULK POWER LINES

LINE OWNERSHIP LIST	TERMINALS		LINE LENGTH MILES	EXPECTED SERVICE DATE		NOMINAL VOLTAGE IN KV OPER.	DESIGN
01	02		03	04		05	06
				YEAR/PRIOR TO*			
BOEC	NORFOLK S/S NORFOLK, MA	DEAN ST TAP NORFOLK, MA	3.7	1991	W	115	115
BOEC	NORFOLK S/S NORFOLK, MA	DEAN ST TAP NORFOLK, MA	3.7	1991	W	115	115
NOEU	CC-P UNIROYAL COGEN. NAUGATUCK, CT	NAUGATUCK S/S NAUGATUCK, CT	0.7	1991	S	115	115
NOEU	**STEVENSON STATION MONROE, CT	NEWTOWN S/S NEWTOWN, CT	6.6	1991	S	115	115
BOEC	**FRAMINGHAM S/S FRAMINGHAM, MA	SHERBORN S/S SHERBORN, MA	1.6	1991	S	115	115
BOEC	STRANDWAY TAP SOUTH BOSTON, MA	ANDREW SQUARE S/S SOUTH BOSTON, MA	0.6	1991	S	115	115
BOEC	STRANDWAY TAP SOUTH BOSTON, MA	ANDREW SQUARE S/S SOUTH BOSTON, MA	0.6	1991	S	115	115
COMW	HARWICH TAP DENNIS, MA	ORLEANS S/S ORLEANS, MA	8.4	1991	S	115	115
COMW	HARWICH TAP DENNIS, MA	HARWICH HARWICH, MA	4.4	1991	S	115	115
NOEU	**OSWALD JCT. LENOX, MA	WOODLAND S/S LEE, MA	4.6	1991	S	115	115
BOEC	**SHERBORN S/S SHERBORN, MA	MEDWAY S/S MEDWAY, MA	8.9	1991	S	115	115
VTGP	MIDDLESEX S/S MOORETOWN, VT	IRASVILLE S/S WAITSFIELD, VT	14.0	1991	W	115	115
NOEU	ARS GROUP S.P.P. PUTNAM, CT	LINE #1505 PUTNAM, CT	0.6	1991	W	115	115
NOEU	**NEWTOWN S/S NEWTOWN, CT	PLUMTREE S/S BETHEL, CT	5.9	1992	S	115	115
BOEC	L STREET S/S SOUTH BOSTON, MA	DEER ISLAND S/S BOSTON, MA	3.5	1992	S	115	115

* S - SUMMER PEAK PERIOD; W - WINTER PEAK PERIOD
** REBUILD,RECONDUCTOR,UPGRADE VOLTAGE, OR BUNDLE EXISTING CIRCUITS

SECTION V

LIST OF PROPOSED BULK POWER LINES

LINE OWNERSHIP LIST 01	TERMINALS 02		LINE LENGTH MILES 03	EXPECTED SERVICE DATE 04 YEAR/PRIOR TO*		NOMINAL VOLTAGE IN KV OPER. 05	DESIGN 06
BOEC	CHELSEA S/S CHELSEA, MA	DEER ISLAND S/S BOSTON, MA	4.5	1992	S	115	115
BANE	ORRINGTON S/S ORRINGTON, ME	ELLSWORTH FALLS S/S ELLSWORTH, ME	24.0	1992	S	115	115
BOEC	**WOBURN/TEWKSBURY TAP WOBURN, MA	READING/N. WOBURN TAP READING, MA	2.3	1992	S	115	115
NOEU	**MANCHESTER S/S MANCHESTER, CT	SOUTH WINDSOR S/S SOUTH WINDSOR, CT	6.3	1992	S	115	115
NOEU	**PODICK JCT. AMHERST, MA	PODICK S/S AMHERST, MA	1.2	1992	S	115	115
NOEU	**PODICK JCT. AMHERST, MA	PODICK S/S AMHERST, MA	1.2	1992	S	115	115
NOEU	**GLENBROOK S/S STAMFORD, CT	SOUTH END S/S STAMFORD, CT	0.4	1992	S	115	115
NOEU	**SOUTH END S/S STAMFORD, CT	WATERSIDE S/S STAMFORD, CT	1.4	1992	S	115	115
NOEU	**GLENBROOK S/S STAMFORD, CT	WATERSIDE S/S STAMFORD, CT	1.8	1992	S	115	115
NOEU	FEDERAL PAPER COGEN. SPRAGUE, CT	LINE #1607 LISBON, CT	3.0	1992	W	115	115
BOEC	**WOBURN/TEWKSBURY TAP WOBURN, MA	READING/N. WOBURN TAP READING, MA	2.3	1992	S	115	115
UNIC	PEQUONNOCK S/S BRIDGPORT, CT	ELY AVE. JCT.(UI SECT.) NORWALK, CT	6.9	1992	W	115	115
NOEU	PEQUONNOCK S/S BRIDGPORT, CT	ELY AVE. JCT.(CL&P SECT.) NORWALK, CT	8.5	1992	W	115	115
UNIC	**BAIRD S/S STRATFORD, CT	CONGRESS S/S BRIDGEPORT, CT	2.3	1993	S	115	115
BOEC	**WALTHAM S/S WALTHAM, MA	SUDBURY S/S SUDBURY, MA	7.2	1993	S	115	115

* S - SUMMER PEAK PERIOD; W - WINTER PEAK PERIOD
** REBUILD,RECONDUCTOR,UPGRADE VOLTAGE, OR BUNDLE EXISTING CIRCUITS

APRIL 1, 1989

SECTION V

LIST OF PROPOSED BULK POWER LINES

LINE OWNERSHIP LIST 01	TERMINALS 02		LINE LENGTH MILES 03	EXPECTED SERVICE DATE 04 YEAR/PRIOR TO*		NOMINAL VOLTAGE IN KV OPER. 05	NOMINAL VOLTAGE IN KV DESIGN 06
BOEC	CANTON S/S CANTON, MA	WESTWOOD S/S WESTWOOD, MA	1.6	1993	S	115	115
BOEC	CANTON S/S CANTON, MA	WESTWOOD S/S WESTWOOD, MA	1.6	1993	S	115	115
BOEC	MEDWAY S/S MEDWAY, MA	HOPKINTON S/S HOPKINTON, MA	7.9	1993	S	115	115
BOEC	MEDWAY S/S MEDWAY, MA	HOPKINTON S/S HOPKINTON, MA	7.9	1993	S	115	115
BOEC	MAYNARD S/S MAYNARD, MA	ACTON S/S ACTON, MA	5.4	1993	S	115	115
BOEC	MAYNARD S/S MAYNARD, MA	ACTON S/S ACTON, MA	5.4	1993	S	115	115
BOEC	FARGO/CONVERSE TAP BOSTON, MA	NORTHERN AVE. S/S/ BOSTON, MA	0.2	1993	W	115	115
BOEC	FARGO/CONVERSE TAP BOSTON, MA	NORTHERN AVE. S/S/ BOSTON, MA	0.2	1993	W	115	115
BOEC	**BAKER STREET S/S WEST ROXBURY, MA	WASHINGTON TAP BOSTON, MA	5.5	1994	S	115	115
BOEC	**BAKER STREET S/S WEST ROXBURY, MA	WASHINGTON TAP BOSTON, MA	5.5	1994	S	115	115
NOEU	**PEACEABLE S/S REDDING, CT	NORWALK S/S NORWALK, CT	10.3	1994	S	115	115
VTGP	BENNINGTON S/S BENNINGTON, VT	E. ARLINGTON S/S ARLINGTON, VT	11.4	1994	W	115	115
NOEU	APPLE VALLEY JCT. CHESIZE, CT	APPLE VALLEY S/S CHESIRE, CT	1.5	1994	W	115	115
NOEU	APPLE VALLEY JCT. CHESIRE, CT	APPLE VALLEY S/S CHESIRE, CT	1.5	1994	W	115	115
NOEU	**STONY HILL S/S BROOKFIELD, CT	SHEPAUG S/S SOUTHBURY, CT	5.8	1994	W	115	115

* S - SUMMER PEAK PERIOD; W - WINTER PEAK PERIOD

** REBUILD,RECONDUCTOR,UPGRADE VOLTAGE, OR BUNDLE EXISTING CIRCUITS

APRIL 1, 1989

SECTION V

LIST OF PROPOSED BULK POWER LINES

LINE OWNERSHIP LIST	TERMINALS		LINE LENGTH MILES	EXPECTED SERVICE DATE		NOMINAL VOLTAGE IN KV OPER.	DESIGN
01	02		03	04		05	06
				YEAR/PRIOR TO*			
BOEC	WALTHAM S/S WALTHAM, MA	TRAPELO ROAD S/S WALTHAM, MA	2.7	1995	S	115	115
BOEC	WALTHAAM S/S WALTHAM, MA	TRAPELO ROAD S/S WALTHAM, MA	2.7	1995	S	115	115
BOEC	MYSTIC STATION EVERETT, MA	NORTH STATION S/S BOSTON, MA	2.1	1995	S	115	115
BOEC	MYSTIC STATION EVERETT, MA	NORTH STATION S/S BOSTON, MA	2.1	1995	S	115	115
NOEU	**OLD TOWN S/S BRIDGEPORT, CT	WESTON S/S WESTON, CT	9.6	1995	S	115	115
NOEU	**OLD TOWN S/S BRIDGEPORT, CT	WESTON S/S WESTON, CT	9.6	1995	S	115	115
BOEC	**LEXINGTON S/S LEXINGTON, MA	TRAPELO ROAD S/S WALTHAM, MA	2.6	1995	S	115	115
BOEC	**LEXINGTON S/S LEXINGTON, MA	TRAPELO ROAD S/S WALTHAM, MA	2.6	1995	S	115	115
NOEU	**SOUTH WINDSOR S/S SOUTH WINDSOR, CT	BARBOUR HILL S/S SOUTH WINDSOR, CT	2.4	1996	S	115	115
NOEU	**WESTON S/S WESTON, CT	NORWALK S/S NORWALK, CT	6.3	1996	S	115	115
NOEU	**WESTON S/S WESTON, CT	NORWALK S/S NORWALK, CT	6.3	1996	S	115	115
UNIC	**MILVON S/S MILFORD, CT	DEVON TAP MILFORD, CT	1.4	1996	S	115	115
NOEU	**FARMINGTON S/S FARMINGTON, CT.	NEWINGTON S/S NEWINGTON, CT.	3.6	1997	S	115	115
VTGP	CHAMPLAIN S/S ESSEX, VT	ESSEX TAP NORTH ESSEX, VT	2.6	1997	W	115	115
VTGP	CHAMPLAIN S/S ESSEX, VT	ESSEX S/S ESSEX, VT	3.0	1997	W	115	115

* S - SUMMER PEAK PERIOD; W - WINTER PEAK PERIOD
** REBUILD,RECONDUCTOR,UPGRADE VOLTAGE, OR BUNDLE EXISTING CIRCUITS

SECTION V

LIST OF PROPOSED BULK POWER LINES

LINE OWNERSHIP LIST	TERMINALS		LINE LENGTH MILES	EXPECTED SERVICE DATE		NOMINAL VOLTAGE IN KV OPER.	DESIGN
01	02		03	04		05	06
				YEAR/PRIOR TO*			
VTGP	CHAMPLAIN S/S ESSEX, VT	ESSEX TAP SOUTH ESSEX, VT	1.0	1997	W	115	115
NOEU	MANCHESTER S/S MANCHESTER, CT	MEEKVILLE JCT. MANCHESTER, CT	2.3	1998	S	115	115
NOEU	FROST BRIDGE S/S WATERTOWN, CT	WALNUT HILL JCT. THOMASTON, CT	7.0	1998	S	115	115
NOEU	WEINGART JCT. HARWINTON, CT	BURRVILLE S/S TORRINGTON, CT	4.6	1998	S	115	115
NOEU	WEINGART JCT. HARWINTON, CT	BURRVILLE S/S TORRINGTON, CT	4.6	1998	S	115	115
NOEU	**AGAWAM S/S AGAWAM, MA	SOUTH AGAWAM JCT. AGAWAM, MA	3.0	1998	S	115	115
NOEU	**AGAWAM S/S AGAWAM, MA	SOUTH AGAWAM JCT. AGAWAM, MA	3.0	1998	S	115	115
NOEU	MANSFIELD S/S MANSFIELD, CT	BLAIR S/S STAFFORD, CT	10.2	1999	S	115	115
NOEU	ENFIELD S/S ENFIELD, CT	SUFFIELD S/S SUFFIELD, CT	3.0	1999	S	115	115
NOEU	ENFIELD S/S ENFIELD, CT	SUFFIELD S/S SUFFIELD, CT	3.0	1999	S	115	115
PSNH	LONG HILL S/S NASHUA, NH	COLBURN RD. S/S MILFORD, NH	13.2	1999	W	115	115
PSNH	COLBURN RD. S/S MILFORD, NH	SOUTH MILFORD S/S MILFORD, NH	2.8	1999	W	115	115
NOEU	COS COB S/S GREENWICH, CT	GREENWICH S/S GREENWICH, CT	2.3	2000	S	115	115
NOEU	COS COB S/S GREENWICH, CT	GREENWICH S/S GREENWICH, CT	2.3	2000	S	115	115
NOEU	**FROST BRIDGE S/S WATERTOWN, CT	BALDWIN JCT. MIDDLEBURY, CT	7.1	2000	S	115	115

* S - SUMMER PEAK PERIOD; W - WINTER PEAK PERIOD
** REBUILD,RECONDUCTOR,UPGRADE VOLTAGE, OR BUNDLE EXISTING CIRCUITS

SECTION V

LIST OF PROPOSED BULK POWER LINES

LINE OWNERSHIP LIST 01	TERMINALS 02		LINE LENGTH MILES 03	EXPECTED SERVICE DATE 04		NOMINAL VOLTAGE IN KV OPER. 05	NOMINAL VOLTAGE IN KV DESIGN 06
				YEAR/PRIOR TO*			
NOEU	**DEVON STATION MILFORD, CT	PEASE RD. JCT. WOODBRIDGE, CT	13.4	2001	S	115	115
NOEU	**BALDWIN JCT. MIDDLEBURY, CT	STEVENSON STATION MONROE, CT	10.4	2001	S	115	115
NOEU	**SOUTHINGTON S/S SOUTHINGTON, CT	CANAL S/S CHESHIRE, CT	2.1	2001	S	115	115
NOEU	**SOUTHINGTON S/S SOUTHINGTON, CT	TODD S/S WATERBURY, CT	5.9	2002	S	115	115
NOEU	COOK HILL JCT. CHESIRE, CT	WALLINGFORD JCT. WALLINGFORD, CT	2.9	2002	S	115	115
PSNH	DEERFIELD S/S DEERFIELD, NH	PITTSFIELD S/S PITTSFIELD, NH	17.5	2002	W	115	115
PSNH	J-136 LINE TAP KEENE, NH	KEENE S/S KEENE, NH	3.8	2006	W	115	115
PSNH	P-145 LINE TAP CONCORD, NH	PENACOOK S/S CONCORD, NH	1.8	2007	W	115	115

* S - SUMMER PEAK PERIOD; W - WINTER PEAK PERIOD

** REBUILD,RECONDUCTOR,UPGRADE VOLTAGE, OR BUNDLE EXISTING CIRCUITS

SECTION V

SUMMARY OF EXISTING, SCHEDULED AND PROPOSED CHANGES IN TRANSMISSION LINES

	TOTAL MILES ADDED			
	450kV HVDC	345kV	230kV	138-115kV
EXISTING AS OF JAN. 1, 1988	59	1735	444	5542
ADDITIONS				
JAN. 1, 1989 - DEC. 31, 1989		4		35
JAN. 1, 1990 - DEC. 31, 1990	133	52	16	129
JAN. 1, 1991 - DEC. 31, 1991		82		54
JAN. 1, 1992 - DEC. 31, 1992		4		50
JAN. 1, 1993 - DEC. 31, 1993				30
JAN. 1, 1994 - DEC. 31, 1994		89		14
JAN. 1, 1995 - DEC. 31, 1995		14		10
JAN. 1, 1996 - DEC. 31, 1996		11		
JAN. 1, 1997 - DEC. 31, 1997			41	7
JAN. 1, 1998 - DEC. 31, 1998		12		18
JAN. 1, 1999 - DEC. 31, 1999				32
JAN. 1, 2000 - DEC. 31, 2000				5
JAN. 1, 2001 - DEC. 31, 2001				
JAN. 1, 2002 - DEC. 31, 2002				20
JAN. 1, 2003 - DEC. 31, 2003		28		
JAN. 1, 2004 - DEC. 31, 2004				
TOTAL ADDITIONS THROUGH 12/31/04	133	206	16	88
TOTAL TRANSMISSION 12/31/04	192	1941	460	5630

MILEAGE VALUES BASED ON OPERATING VOLTAGE

APPENDIX - A

I. LOAD ADJUSTMENT DEFINITIONS

The summary pages of this report (Section I) contain terms that are used to describe how the NEPOOL load forecast is adjusted. The definition for those terms are as follows:

1. Non-OP4 Interruptible Contracts
   Amount of customer load that is under contract with a utility which can be controlled at the time of system peak in response to a signal or oral request from a dispatcher and generally achieved within 10 to 30 minutes. The amount shown excludes that which is under NEPOOL control as part of Operating Procedure 4.

2. Peak Load Management
   Amount of customer load reduced from or shifted off system peak (with and without utility control or requests) with only minimum or no change in energy consumption. Examples include customer response to incentives embodied in peak rate designs, replacement of conventional space and water heating equipment with storage types (by utility or customer) and other devices which affect the timing of electrical equipment utilization.

3. Conservation on Peak
   Amount of customer load reduction at the time of system peak due to utility programs which reduce customer load during many hours in the year. Examples include utility rebate and shared savings programs for the installation of energy efficient appliances, lighting and electrical machinery, and subsidized weatherization programs.

4. Non-Utility Generation Netted from Load

   Non-Utility generation which is not claimed for capability as supply is netted from load as reduced demand. (If the generation has always served customer loads and those loads have not been included in the NEPOOL load history or forecast, then the generation is neither counted toward capability nor netted from load.)

II. ABBREVIATIONS DEFINED

The portion of the appendix that follows has been organized around the column numbers of Section III since that section is where most of the abbreviations are used. The one exception is the STATUS codes which appear only in the table of proposed additions located in Section IV, and Appendices B & C.

The column numbers reference Section III, but the descriptions pertain to the entire report.

Column 01: Identification of Reporting Parties

	4 Character Letter Code	System Identification
	BHE	Bangor Hydro-Electric Company
(1)	BECO	Boston Edison Company
	BELD	Braintree Electric Light Department
(1)	CMP	Central Maine Power Company
	CMLP	Chicopee Municipal Lighting Plant
(1)	CES	Commonwealth Electric System
	CMEEC	Connecticut Municipal Electric Energy Cooperative
	CTMU	Connecticut Municipals
(1)	EUA	Eastern Utilities Associates System
	FGE	Fitchburg Gas and Electric Company
	HMLD	Holden Municipal Light Department
	HGE	Holyoke Gas and Electric Department
	HLPD	Hudson Light and Power Department
	IMLD	Ipswich Municipal Light Department
(2)	MECO	Maine Co-op
	MEPCO	Maine Electric Power Company
(2)	MPS	Maine Public Service Company
	MMLD	Marblehead Municipal Light Department
	MMWEC	Massachusetts Municipal Wholesale Electric Company
(1)	NEES	New England Electric System
	NEET	New England Electric Transmission Corp.
(2)	NHCO	New Hampshire Co-op
	NEWP	Newport Electric Corporation
(1)	NU	Northeast Utilities
	PMLP	Peabody Municipal Light Plant
	PMLD	Princeton Municipal Light Department
(1)	PSNH	Public Service Company of New Hampshire
	SELP	Shrewsbury Electric Light Plant
	SMLP	Sterling Municipal Light Department
	TMLP	Taunton Municipal Light Plant
(1)	UI	The United Illuminating Company
	UNITIL	UNITIL Power Corporation
(1)	VTGP	Vermont Group

(1) Member of Northeast Power Coordinating Council

(2) Nonmember of New England Power Pool. Detailed information for this entity is not provided in this report.

Column 03: Unit Location

The location of each generating unit is expressed by using the Federal Information Processing Service's two-digit state code and three-digit county code.

STATE NAME: CONNECTICUT
STATE CODE: 09

Code	County Name
001	FAIRFIELD
003	HARTFORD
005	LITCHFIELD
007	MIDDLESEX
009	NEW HAVEN
011	NEW LONDON
013	TOLLAND
015	WINDHAM

STATE NAME: MAINE
STATE CODE: 23

Code	County Name
001	ANDROSCOGGIN
003	AROOSTOOK
005	CUMBERLAND
007	FRANKLIN
009	HANCOCK
011	KENNEBEC
013	KNOX
015	LINCOLN
017	OXFORD
019	PENOBSCOT
021	PISCATAQUIS
023	SAGADAHOC
025	SOMERSET
027	WALDO
029	WASHINGTON
031	YORK

STATE NAME: MASSACHUSETTS
STATE CODE: 25

Code	County Name
001	BARNSTABLE
003	BERKSHIRE
005	BRISTOL
007	DUKES
009	ESSEX
011	FRANKLIN
013	HAMPDEN
015	HAMPSHIRE
017	MIDDLESEX
019	NANTUCKET
021	NORFOLK
023	PLYMOUTH
025	SUFFOLK
027	WORCESTER

STATE NAME: VERMONT
STATE CODE: 50

Code	County Name
001	ADDISON
003	BENNINGTON
005	CALEDONIA
007	CHITTENDEN
009	ESSEX
011	FRANKLIN
013	GRAND ISLE
015	LAMOILLE
017	ORANGE
019	ORLEANS
021	RUTLAND
023	WASHINGTON
025	WINDHAM
027	WINDSOR

STATE NAME: NEW HAMPSHIRE
STATE CODE: 33

Code	County Name
001	BELKNAP
003	CARROLL
005	CHESHIRE
007	COOS
009	GRAFTON
011	HILLSBOROUGH (HILLSBORO)
013	MERRIMACK
015	ROCKINGHAM
017	STRAFFORD
019	SULLIVAN

STATE NAME: RHODE ISLAND
STATE CODE: 44

Code	County Name
001	BRISTOL
003	KENT
005	NEWPORT
007	PROVIDENCE
009	WASHINGTON

Column 04: Unit Type

2 Character Letter Code	Type of Electrical Capacity
PP	Purchased Power
SP	Sale of Power
ST	Steam turbine - nonnuclear
NB	Steam - BWR Nuclear
NP	Steam - PWR Nuclear
NH	Steam - HTGR Nuclear
IC	Internal Combustion (Diesel)
GT	Combustion Turbine (Gas Turbine)
HY	Conventional Hydro
PS	Pumped Storage Hydro
CC	Combined Cycle
CW	Combined Cycle - Steam Portion - Waste Heat only
CA	Combined Cycle - Steam Portion - Auxiliary Fired
CT	Combined Cycle - Combustion Turbine Portion
JE	Jet Engine
PF	Non-Utility Thermal Generation
PH	Non-Utility Hydro Generation
FC	Fuel Cell
SO	Solar
WM	Wind Power
GE	Geothermal
CO	Cogeneration
ZZ	None of the above (described in footnote)
FLBD	Fluidized Bed

Columns 05 and 06: Summer and Winter net capability in megawatts

Typical definitions:

Summer rating: is the maximum claimed full load net summer rating at which the owner will operate the unit for the duration of the peak (assumed to be eight (8) hours for June through September). This reflects values approved by the NEPOOL Operations Committee where it has jurisdiction. (The summer rating for a gas turbine and the gas turbine portion of a combined cycle is based on a 90°F ambient temperature.)

Winter rating: is the maximum claimed full load net winter rating at which the owner will operate the unit for the duration of the peak (assumed to be two (2) hours) and will reflect values approved by the NEPOOL Operations Committee where it has jurisdiction. (The winter rating for the gas turbine and the gas turbine portion of a combined cycle is based on a 20°F ambient temperature.)

Special Cases:

Median Hydro Capacity: hydro capacity is based on the average capacity output of the latest 20-year period. Capacity in any month is that capacity that can be relied upon for serving system load and firm power commitments on the basis of the energy available in that month and its use as limited by the characteristics of the load to be served.

Pumped Storage Capacity: gives the pumped storage capacity which can be relied upon to carry system load or provide dependable reserve capacity at the usual time of annual system peak, taking into account such factors as limitations in plant capability due to reservoir draw down, the energy equivalent of storage in the upper reservoirs, and the available pumping energy on a daily or weekly pumping cycle.

Purchases and Sales: indicates the amount of firm power as stated in the contract which is intended to be available to the purchaser at the time of the purchaser's annual system peak.

Columns 07 and 09: Type of Fuel

3 Character Alphanumeric	Description of Fuel Used
WH	Waste Heat
COL	Coal (general)
BIT	Bituminous Coal
SUB	Sub-Bituminous Coal
ANT	Anthracite Coal
LIG	Liquefied Natural Gas
MTH	Methanol
GAS	Gas (general)
NG	Natural Gas
RG	Refinery Gas
BFG	Blast Furnace Gas
COG	Coke Oven Gas
GST	Geothermal Steam
MUL	Multifueled
REF	Refuse (solid waste)
OIL	Oil (general)
FO1	No. 1 Fuel Oil
FO2	No. 2 Fuel Oil
FO4	No. 4 Fuel Oil
FO5	No. 5 Fuel Oil
FO6	No. 6 Fuel Oil
CRU	Crude Oil

3 Character Alphanumeric	Description of Fuel Used
TOP	Top Crude Oil
JF	Jet Fuel
KER	Kerosene
LPG	Liquid Propane Gas
RRO	Rerefined Motor Oil
SNG	Synthetic Natural Gas
UR	Uranium
PL	Plutonium
WAT	Water
SUN	Sun
WND	Wind
TH	Thorium
WOD	Wood
G/C	Gas and/or Coal
O/C	Oil and/or Coal
W/G	Wood and/or Gas
W/O	Wood and/or Oil
MET	Methane

Columns 08 and 10: Principal methods of transporting fuel to the plant site

2 Character Letter Code	Description of Transportation
WA	Water Transportation
TK	Truck
RR	Railroad
PL	Pipeline
CV	Conveyor
WT	Water and/or truck
TP	Truck and/or pipeline
TR	Truck and/or railroad
PR	Pipeline and/or railroad

STATUS

The status code is used for proposed capacity additions (units or purchases) in Section IV and Appendices B & C. All "NEPOOL Planned" capacity is counted toward capability. All capacity with codes T, U, V are counted toward capability as well.

P	Planned for installation but not utility-authorized.
L	Regulatory approval pending. Not under construction.
T	Regulatory approval received (including building permit) but not under construction.
U	Under construction. Less than approximately 50 percent of plant completed.
V	Under construction. More than approximately 50 percent of plant completed.
P*	"NEPOOL Planned" capacity without regulatory approval.
L*	"NEPOOL Planned" capacity with regulatory approval pending not under construction.
T*	"NEPOOL Planned" capacity with regulatory approval received (including building permit) but not under construction.
U*	"NEPOOL Planned" capacity under construction. Less than approximately 50 percent completed.
V*	"NEPOOL Planned" capacity under construction. More than approximately 50 percent completed.

APPENDIX B.1

NEPOOL'S EXISTING RENEWABLE NON-UTILITY GENERATION CAPABILITY AS OF JANUARY 1, 1989

PURCHASING SYSTEM	STATION NAME AND NO.	LOCATION	UNIT TYPE	PRIMARY FUEL NET CAPABILITY-MW SUMMER	WINTER	FUEL TYPE	TRANSP. METHOD	ALTERNATE FUEL FUEL TYPE	TRANSP. METHOD	NOTES
01	02	03	04	05	06	07	08	09	10	11
BHE	Great Northern Paper	23 -019	HY	12.00	12.00	WAT				
BHE	West Enfield	23 -019	HY	10.50	14.50	WAT				
BECO	MDC Wachusett Dam	25 -027	HY	1.05	1.05	WAT				50.0 PERCENT OF UNIT
CMP	Androscoggin WP/ Pejepscot Paper	23 -023	HY	13.55	13.55	WAT				
CMP	Aziscohos	23 -019	HY	6.81	6.81	WAT				
CMP	Barker Mill - Lower	23 -001	HY	1.40	1.40	WAT				
CMP	Madison Abenaki Lower	23 -025	HY	6.65	6.65	WAT				
CMP	Madison Anson Upper	23 -007	HY	6.77	6.77	WAT				
CMP	Milstar Mfg. - Lockwood 1	23 -011	HY	3.95	3.95	WAT				
CMP	Milstar Mfg. - Lockwood 2	23 -011	HY	1.75	1.75	WAT				
CMP	Otis-International Paper Dam	23 -001	HY	9.00	9.00	WAT				
CMP	Riley-International Paper Dam	23 -007	HY	5.35	5.50	WAT				
CES	Boot Hydro (CII)	25 -019	HY	18.50	20.00	WAT				
CES	Chicopee Hydro (Swift River)	25 -013	HY	2.17	2.17	WAT				
CES	Collins Hydro (Swift River)	25 -013	HY	1.03	1.03	WAT				
CES	Ware Hydro (Pioneer)	25 -015	HY	1.00	1.19	WAT				
FGE	Linweave	25 -013	HY	2.64	3.89	WAT				
MMWEC	Acton Hydro(NO ATTLEBORO)	25 -017	HY	0.10	0.10	WAT				
MMWEC	Appleton Hydro	25 -017	HY	0.30	0.30	WAT				
MMWEC	Dudley Hydro	25 -027	HY	0.10	0.10	WAT				
MMWEC	Methuen Hydro	25 -009	HY	0.08	0.08	WAT				
MMWEC	Orange Hydro (Templeton)	25 -011	HY	0.10	0.15	WAT				
MMWEC	Webster Hydro	25 -027	HY	0.13	0.20	WAT				
NEES	Lawrence Hydro	25 -009	HY	13.75	14.10	WAT				
NEES	MDC Wachusetts Dam	25 -027	HY	1.06	1.06	WAT				50.0 PERCENT OF UNIT
NEES	Pontook Hydro	33 -007	HY	10.67	10.85	WAT				
PSNK	Briar Hydro (Essex)	33 -013	HY	3.50	4.13	WAT				
PSNH	Clement Dam	33 -001	HY	1.80	2.20	WAT				
PSNL	Errol Dam	33 -007	HY	2.20	2.15	WAT				
PSNH	Greggs Falls/NHWRB	33 -011	HY	2.11	3.50	WAT				
PSNH	Mine Falls	33 -011	HY	2.00	3.00	WAT				
PSNH	Pembroke Project	33 -013	HY	1.48	2.80	WAT				
PSNH	Penacook Lower Falls	33 -013	HY	4.60	4.62	WAT				
PSNH	Penacook Upper Falls	33 -013	HY	3.50	3.50	WAT				
PSNH	River Bend Hydro	33 -013	HY	1.60	1.70	WAT				
PSNH	Spaulding Hydro (Milton)	33 -017	HY	1.20	1.35	WAT				
VTGP	Barnet Hydro	50 -005	HY	0.49	0.49	WAT				
VTGP	Brockway Mills(WILLIAMS RIVER)	50 -025	HY	0.00	0.42	WAT				
VTGP	Comtu Falls 1	50 -027	HY	0.27	0.27	WAT				
VTGP	Dewey Mill - Hydro Energy Corp	50 -027	HY	2.50	3.85	WAT				

NOTE: APPENDIX-A DEFINES CODES USED IN COLUMNS 1-11.

APPENDIX B.1

NEPOOL'S EXISTING RENEWABLE NON-UTILITY GENERATION CAPABILITY AS OF JANUARY 1, 1989

				PRIMARY FUEL				ALTERNATE FUEL		
				NET CAPABILITY-MW						
PURCHASING SYSTEM	STATION NAME AND NO.	LOCATION	UNIT TYPE	SUMMER	WINTER	FUEL TYPE	TRANSP. METHOD	FUEL TYPE	TRANSP. METHOD	NOTES
01	02	03	04	05	06	07	08	09	10	11
VTGP	Emerson Falls Hydro	50 -005	HY	0.23	0.21	WAT				
VTGP	Huntington Falls Station	50 -021	HY	1.80	5.76	WAT				
VTGP	Hydro Current Corp 1&2	50 -027	HY	1.95	2.23	WAT				
VTGP	Kingsbury	50 -005	HY	0.10	0.20	WAT				
VTGP	Ladd's Mill	50 -023	HY	0.14	0.14	WAT				
VTGP	Martinsville Water Power	50 -027	HY	0.24	0.25	WAT				
VTGP	Newbury Hydro	50 -023	HY	0.20	0.26	WAT				
VTGP	Sheldon Springs Hydro(MISSISQUOI)	50 -011	HY	24.45	26.40	WAT				
VTGP	Slack Dam	50 -027	HY	0.35	0.40	WAT				
VTGP	Winooski Hydro-8	50 -007	HY	0.88	0.88	WAT				
VTGP	Woodside Hydro	50 -015	HY	0.12	0.12	WAT				
			TOTAL	188.12	206.98					

NOTE: APPENDIX-A DEFINES CODES USED IN COLUMNS 1-11.

April 1, 1989

APPENDIX B.2

NEPOOL'S EXISTING THERMAL NON-UTILITY GENERATION CAPABILITY AS OF JANUARY 1, 1989

PURCHASING SYSTEM 01	STATION NAME AND NO. (2	LOCATION 03	UNIT TYPE 04	PRIMARY FUEL: NET CAPABILITY-MW SUMMER 05	PRIMARY FUEL: NET CAPABILITY-MW WINTER 06	PRIMARY FUEL: FUEL TYPE 07	PRIMARY FUEL: TRANSP. METHOD 08	ALTERNATE FUEL: FUEL TYPE 09	ALTERNATE FUEL: TRANSP. METHOD 10	NOTES 11
BHE	Beaverwood AED 1 (THERM)	23 -019	ST	11.39	11.39	WOD	TK			74.0 PERCENT OF UNIT
BHE	Penobscot Energy Recovery PERC	23 -019	ST	17.50	17.50	REF	TK			81.4 PERCENT OF UNIT
BHE	Ultrapower - West Enfield	23 -019	ST	16.50	16.50	WOD	TK			66.0 PERCENT OF UNIT
BHE	Ultrapower - Jonesboro (THERM)	23 -029	ST	16.50	16.50	WOD	TK			66.0 PERCENT OF UNIT
BECO	M Street Jet(MBTA)	25 -025	GT	26.30	35.50	JF	TK			
CMP	Bates Fabrics	23 -001	ST	8.10	8.10	REF	TK			
CMP	Fairfield Energy Venture	23 -003	ST	33.00	33.00	WOD	TK			
CMP	Gorbell	23 -025	ST	13.74	13.74	WOD	TK			
CMP	Gtr. Portland Resource Recovery	23 -005	ST	11.03	11.03	REF	TK			
CMP	Maine Energy Recovery Corp.	23 -031	ST	17.42	17.42	REF	TK			
CMP	Scott-Westbrook	23 -005	ST	38.63	48.00	WOD	TK			
CMP	Swift River, Greenville	23 -021	ST	14.80	14.80	WOD	TK			
CES	CPC Lowell (Joan Fabrics)	25 -019	CC	26.80	26.80	NG	PL	FO2	TK	
CES	SEMASS	25 -023	ST	46.18	46.18	REF	TK			
MMWEC	Carbalon(STERLING DSLS(2))	25 -027	IC	0.33	0.33	FO2	TK			
MMWEC	Refuse Fuels Associates(LAWRENCE)	25 -009	ST	10.00	10.00	REF	TK			
NEES	General Electric	25 -025	GT	14.40	19.07	GAS	PL	OIL	TK	
NEES	Mass Refuse Tech (NESWC-RESCO)	25 -009	ST	32.17	34.02	REF	TK			
NEES	Refuse Engy Co Saug 1	25 -009	ST	32.85	32.79	REF	TK			
NEES	Signal Millbury	25 -027	ST	39.39	40.20	REF	TK			
NU	Bristol Refuse	09 -003	ST	13.20	13.20	REF	TK			
NU	Capitol District Energy Ctr(Aetna)	09 -003	CC	45.00	45.00	NG	PL	FO2	TK	
NU	Flagg/Hartford Hosp. (CCF-1)	09 -003	CC	10.15	10.15	NG	PL	FO2	TK	
NU	Mid Conn (Hartford CRRA)	09 -003	ST	64.10	64.10	REF	TK			
NU	Springfield Res Recov Proj	25 -013	ST	6.00	6.00	REF	TK			
PSNH	Alexandria Power	33 -009	ST	14.53	15.19	WOD	TK			
PSNH	Bethlehem Project	33 -007	ST	18.61	17.00	WOD	TK			
PSNH	Bio-Energy Corp	33 -013	ST	11.64	11.64	WOD	TK			
PSNH	Bridgewater Steam	33 -009	ST	16.84	18.14	WOD	TK			
PSNH	Concord Steam Corp.	33 -013	ST	0.66	1.24	WOD	TK			
PSNH	Durgin & Crowell(HEMPHILL PWR&LT)	33 -019	ST	13.71	13.76	WOD	TK			
PSNH	Tamworth Project	33 -003	ST	20.00	20.00	WOD	TK			
PSNH	Timco Inc.	33 -001	ST	3.59	3.84	WOD	TK			
PSNH	Whitefield Power & Light	33 -007	ST	14.43	14.43	WOD	TK			
UI	Amtrak	09 -009	GT	4.55	4.54	GAS	PL	FO2	TK	
UI	Signal/Resco (Bpt CRRA)	09 -001	ST	58.83	58.83	REF	TK			
UNITIL	Beaverwood AED 1 (THERM)	23 -019	ST	4.00	4.00	WOD	TK			26.0 PERCENT OF UNIT
UNITIL	Penobscot Energy Recovery PERC	23 -019	ST	4.00	4.00	WOD	TK			18.6 PERCENT OF UNIT
UNITIL	Ultrapower - West Enfield	23 -019	ST	8.50	8.50	WOD	TK			34.0 PERCENT OF UNIT
UNITIL	Ultrapower - Jonesboro (THERM)	23 -029	ST	8.50	8.50	WOD	TK			34.0 PERCENT OF UNIT

NOTE: APPENDIX-A DEFINES CODES USED IN COLUMNS 1-11.

April 1, 1989

APPENDIX B.2

NEPOOL'S EXISTING THERMAL NON-UTILITY GENERATION CAPABILITY AS OF JANUARY 1, 1989

PURCHASING SYSTEM	STATION NAME AND NO.	LOCATION	UNIT TYPE	PRIMARY FUEL NET CAPABILITY-MW SUMMER	PRIMARY FUEL NET CAPABILITY-MW WINTER	PRIMARY FUEL FUEL TYPE	PRIMARY FUEL TRANSP. METHOD	ALTERNATE FUEL FUEL TYPE	ALTERNATE FUEL TRANSP. METHOD	NOTES
01	02	03	04	05	06	07	08	09	10	11
UNITIL	WARE Cogen	25 -015	ST	8.60	8.60	COL	TK			
VTGP	NH/VT Solid Waste	33 -019	ST	3.55	3.60	REF	TK			
VTGP	Rutland Solid Waste	50 -021	ST	5.08	5.12	REF	TK			
			TOTAL	785.14	812.25					

NOTE: APPENDIX-A DEFINES CODES USED IN COLUMNS 1-11.

April 1, 1989

APPENDIX B.3

COMMITTED ADDITIONS TO NEPOOL'S RENEWABLE NON-UTILITY GENERATION CAPACITY

JANUARY 1989 THROUGH JANUARY 2005

PURCHASING SYSTEM 01	STATION NAME AND NO. 02	LOCATION 03	UNIT TYPE 04	NET CAPABILITY - MW SUMMER 05	NET CAPABILITY - MW WINTER 06	FUEL TYPE 07	CUMULATIVE CAPABILITY - MW SUMMER 05	CUMULATIVE CAPABILITY - MW WINTER 06	MONTH - YEAR	STATUS 11
CMP	United American Hydro(KENNEBEC)	23 -011	HY	17.00	17.00	WAT	17.00	17.00	2/ 1/ 1989	V
NEES	Mascoma Hydro	33 -009	HY	1.50	1.50	WAT	18.50	18.50	[illegible]/ 1/ 1989	V
NU	Derby Dam	09 -001	HY	6.16	6.16	WAT	24.66	24.66	2/ 1/ 1989	V
VTGP	Moretown 8	50 -023	HY	1.25	1.25	WAT	25.91	25.91	2/ 1/ 1989	V
CMP	Worumbo - Miller Hydro	23 -001	HY	13.10	13.10	WAT	39.01	39.01	3/ 1/ 1989	V
BECO	Southboro Hydro	25 -017	HY	0.75	0.75	WAT	39.76	39.76	3/20/ 1989	V
VTGP	Springfield	50 -027	HY	0.40	0.40	WAT	40.16	40.16	4/ 1/ 1989	V
VTGP	Comtu Falls 2	50 -027	HY	0.15	0.15	WAT	40.31	40.31	11/ 1/ 1989	T
CMP	Andro 1,2,3	23 -001	HY	1.70	1.70	WAT	42.01	42.01	9/ 1/ 1990	U
VTGP	North Troy Hydro	50 -019	HY	0.37	0.37	WAT	42.38	42.38	11/ 1/ 1990	U
VTGP	Dodge Falls - Hydro Co.	50 -005	HY	2.50	4.00	WAT	44.88	46.38	6/ 1/ 1991	T
VTGP	Winooski One Partnership	50 -007	HY	5.00	5.00	WAT	49.88	51.38	11/ 1/ 1991	T

NOTE: APPENDIX-A DEFINES CODES USED IN COLUMNS 1-11.

April 1, 1989

APPENDIX B.4

COMMITTED ADDITIONS TO NEPOOL'S THERMAL NON-UTILITY GENERATION CAPACITY

JANUARY 1989 THROUGH JANUARY 2005

PURCHASING SYSTEM	STATION NAME AND NO.	LOCATION	UNIT TYPE	NET CAPABILITY - MW SUMMER	NET CAPABILITY - MW WINTER	FUEL TYPE	CUMULATIVE CAPABILITY - MW SUMMER	CUMULATIVE CAPABILITY - MW WINTER	MONTH - YEAR	STATUS
01	02	03	04	05	06	07	05	06		11
NEES	Clark University	25 -027	IC	0.18	0.18	OIL	0.18	0.18	2/ 1/ 1989	V
NU	Wallingford Refuse (CRRA)	09 -009	ST	9.20	9.20	REF	9.38	9.38	2/ 1/ 1989	V
UNITIL	Bay State Gas	25 -013	ZZ	0.75	2.00	GAS	10.13	11.38	3/ 1/ 1989	V
CMP	Scott-Winslow	23 -011	ST	5.80	5.80	WOD	15.93	17.18	5/ 1/ 1989	V
NEES	Haverhill Power Inc (OGDEN)	25 -009	ST	40.00	40.00	REF	55.93	57.18	5/ 1/ 1989	V
NU	G. Fox (IEC)	09 -033	GT	4.10	4.10	NG/OIL	60.03	61.28	5/ 1/ 1989	V
BECO	Downeast/Peat Products America	23 -029	ST	22.80	22.80	PEAT	82.83	84.08	6/ 1/ 1989	V
BECO	Capitol District Energy Ctr(Aetna)	09 -003	CC	11.00	11.00	NG	93.83	95.08	7/ 1/ 1989	V
UNITIL	Indeck	25 -011	ST	20.80	21.30	COL	114.63	116.38	8/ 1/ 1989	V
PSNH	Concord Regional Waste	33 -013	ST	12.00	12.00	REF	126.63	128.38	9/ 1/ 1989	V
CMP	Carrabassett Power, ARS Group	23 -007	ST	36.80	36.80	WOD	163.43	165.18	10/ 1/ 1989	V
NU	AES Thames	09 -011	ST	180.00	180.00	COL	343.43	345.18	10/ 1/ 1989	V
NEES	Northeast Landfill Power	44 -007	IC	12.00	12.00	MET	355.43	357.18	12/ 1/ 1989	U
CMP	Lewiston Steam & Power PhII inc	23 -001	ST	3.40	3.40	REF	358.83	360.58	1/ 1/ 1990	U
NU	Flagg/Perkin Elmer (CCF 2)	09 -001	CC	8.50	8.50	NG/OIL	367.33	369.08	1/ 1/ 1990	T
NU	Dexter Corp. CH	09 -003	CC	38.00	39.00	NG/OIL	405.33	408.08	1/ 1/ 1990	U
CES	Pepperell	25 -017	CC	34.60	34.60	NG	439.93	442.68	2/ 1/ 1990	U
CMP	Boise Cascade	23 -017	ST	29.00	29.00	WOD	468.93	471.68	5/ 1/ 1990	U
UNITIL	Arrowhead Cogen.	50 -011	ST	27.00	27.00	NG/OIL	495.93	498.68	6/ 1/ 1990	T
NEES	Altresco/G.E.	25 -003	CC	161.00	161.00	NG	656.93	659.68	7/ 1/ 1990	U
NU	O'Brien/Hartford	09 -003	CC	53.50	54.00	NG/OIL	710.43	713.68	10/ 1/ 1990	T
UNITIL	Unicord Project(PEMBROKE WODBURNR)	33 -013	ST	18.50	19.00	WOD	728.93	732.68	11/ 1/ 1990	U
NU	Exeter Energy (Oxford)	09 -013	ST	24.50	24.50	TIRES	753.43	757.18	1/ 1/ 1991	T
NU	Bio-Gen Torrington Ptnrshp	09 -005	ST	13.00	13.00	WOD	766.43	770.18	1/ 1/ 1991	T
NU	Southeast CT RegionalCRRA(Proctor)	09 -011	ST	13.95	13.85	REF	780.38	784.03	7/ 1/ 1991	T
NU	Flagg/Uniroyal (CCF 3)	09 -009	ST	24.00	24.00	WOD/COL	804.38	808.03	7/ 1/ 1991	T
NU	ARS Power 1	09 -015	ST	32.20	32.20	WOD	836.58	840.23	1/ 1/ 1992	T
NU	Flagg/Perkin Elmer Uprating(CCF 2)	09 -001	CC	0.85	0.85	NG/OIL	837.43	841.08	11/ 1/ 1993	T

ZZ = EXPANSION TURBINE ON HIGH PRESSURE GAS SYSTEM

NOTE: APPENDIX-A DEFINES CODES USED IN COLUMNS 1-11.

April 1, 1989

APPENDIX C

UNCOMMITTED ADDITIONS TO NEPOOL'S NON-UTILITY GENERATION CAPACITY

JANUARY 1989 THROUGH JANUARY 2005

PURCHASING SYSTEM 01	STATION NAME AND NO. 02	LOCATION 03	UNIT TYPE 04	NET CAPABILITY - MW SUMMER 05	NET CAPABILITY - MW WINTER 06	FUEL TYPE 07	CUMULATIVE CAPABILITY - MW SUMMER 05	CUMULATIVE CAPABILITY - MW WINTER 06	MONTH - YEAR	STATUS 11
BECO	Gull Mountain Electric	25 -021	IC	2.00	2.40	MET	2.00	2.40	1/ 1/ 1990	L
CES	Hunt Road Landfill Gas	25 -017	IC	0.68	0.68	MET	2.68	3.08	1/ 1/ 1990	L
UI	Shelton Landfill	09 -001	ST	2.00	2.00	GAS	4.68	5.08	1/ 1/ 1990	P
VTGP	Swanton Hydro	50 -011	HY	1.00	0.60	WAT	5.68	5.68	11/ 1/ 1990	P
EUA	Northeast Energy Associates	25 -021	CC	25.00	25.00	GAS	30.68	30.68	1/ 1/ 1991 *	L
CES	SEMASS Expansion	25 -023	ST	22.50	22.50	REF	53.18	53.18	5/ 1/ 1991	P
VTGP	East Georgia	50 -011	ST	29.00	29.00	GAS	82.18	82.18	5/ 1/ 1991	P
CES	TONDU Energy Systems LEE MILLS	25 -003	CC	47.00	47.00	GAS	129.18	129.18	6/ 1/ 1991	P
NEES	E.M.I.	44 -007	ST	50.00	50.00	GAS	179.18	179.18	6/ 1/ 1991	P
CES	Northeast Energy Associates	25 -021	CC	46.00	46.00	GAS	225.18	225.18	7/ 1/ 1991 *	L
NEES	Alder Ltd.	25 -009	ST	10.00	10.00	WOD	235.18	235.18	7/ 1/ 1991	P
MMWEC	Newbay	44 -007	ST	10.50	10.50	OIL	245.68	245.68	1/ 1/ 1992	P
BECO	Northeast Energy Associates	25 -021	CC	152.00	192.00	GAS	397.68	437.68	1/ 1/ 1992 *	L
BECO	L'Energia (Bio-Energy)	25 -017	CC	48.80	59.00	GAS	446.48	496.68	1/ 1/ 1992	L
BECO	Everett Energy	25 -025	ST	80.00	80.00	COL	526.48	576.68	1/ 1/ 1992	L
CES	New Bedford Cogen	25 -005	FLBD	83.00	83.00	COL	609.48	659.68	1/ 1/ 1992	L
CES	Midway Waste Wood	25 -027	ST	9.75	9.75	WOD	619.23	669.43	1/ 1/ 1992	L
EUA	New England Wood Energy	25 -023	ST	16.00	16.00	WOD	635.23	685.43	1/ 1/ 1992	P
EUA	Enertrac (Fall River/Duro)	25 -005	CC	26.00	26.00	NG/FO2	661.23	711.43	1/ 1/ 1992	P
NEES	Refuse Engy Co Saug 2	25 -009	ST	17.00	17.00	REF	678.23	728.43	1/ 1/ 1992	P
NEES	TELLUS	25 -027	ST	40.00	40.00	GAS	718.23	768.43	1/ 1/ 1992	P
NEES	Newbay	44 -007	ST	40.00	40.00	COL	758.23	808.43	1/ 1/ 1992	P
NEES	KES Pawtucket	44 -007	ST	5.00	5.00	WOD	763.23	813.43	1/ 1/ 1992	P
NEES	O'Brien Cogen V	25 -003	CC	46.00	46.00	GAS	809.23	859.43	1/ 1/ 1992	P
VTGP	ENV Wiedman	50 -005	ST	18.00	18.00	WOD	827.23	877.43	6/ 1/ 1992	P
VTGP	KTI Energy	50 -005	ST	4.55	4.55	REF	831.78	881.98	8/ 1/ 1992	P
VTGP	Great Falls	50 -009	HY	0.40	0.40	WAT	832.18	882.38	12/ 1/ 1992	P
VTGP	No. Springfield - Decker Energy	50 -027	ST	18.00	18.00	WOD	850.18	900.38	12/ 1/ 1992	P
VTGP	Ryegate - Decker Energy	50 -005	ST	18.00	18.00	WOD	868.18	918.38	12/ 1/ 1992	P
VTGP	Bio-Energy Corp.	33 -019	ST	15.00	15.00	WOD	883.18	933.38	12/ 1/ 1992	P
BECO	Urban Woods	25 -021	ST	25.00	25.00	WOD	908.18	958.38	1/ 1/ 1993	L
CES	Wheelabrator MSW	33 -011	ST	42.00	42.00	REF	950.18	1000.38	1/ 1/ 1993	L
EUA	AES Riverside	44 -007	FLBD	18.00	18.00	COL	968.18	1018.38	1/ 1/ 1993	P
NEES	AES Riverside	44 -007	ST	80.00	80.00	COL	1048.18	1098.38	1/ 1/ 1993 *	P
NEES	RI Solid Waste	44 -009	ST	17.00	17.00	REF	1065.18	1115.38	1/ 1/ 1993	P
BECO	AES Riverside	44 -007	ST	80.00	80.00	COL	1145.18	1195.38	1/ 1/ 1994 *	P
BECO	BOS-MASS Cogen (FHN)PATRIOT ENGY	25 -017	ST	200.00	200.00	COL	1345.18	1395.38	1/ 1/ 1994	L

* The Northeast Energy Associates and AES Riverside Steam projects are too preliminary to have a firmly established inservice date.

NOTE: APPENDIX-A DEFINES CODES USED IN COLUMNS 1-11.

April 1, 1989

**NEW ENGLAND
GEOGRAPHIC
TRANSMISSION MAP
THROUGH 2004**

NEPLAN (1-1-89)

The **Chairman**. Thank you very much, Mr. Edwards.

Mr. Edwards, you said that you will meet the load. You were talking about NEPOOL or United Illuminating?

Mr. **Edwards**. NEPOOL.

The **Chairman**. You said NEPOOL will meet the load no matter what, but in other parts of your testimony you stated first that industry has suffered a multi-multi-million dollar loss because they could not get the power because they had to curtail operations.

Now that seems to be a contradiction in terms to me. Is that what you mean by meeting the load, that you will continue to do what you have done, that industry will continue to be hurt and maybe have to move out?

Mr. **Edwards**. No. I think that especially speaking for Governor O'Neill of the State of Connecticut, he is not at all pleased with that. As a matter of fact, the regulators in Connecticut are extremely upset that this is happening, not as much in Connecticut as it is in other parts of the region.

This cooperative effort that I talk about I think will come to the conclusion soon that we are going to have to have additional capacity. We cannot rely totally on interruptible rates, co-generation, conservation, and we are going to have to have new capacity.

The **Chairman**. What I am getting at is just a question of definition. When you say meet the load, do you mean do better than you have done or do the same with the best you can?

Mr. **Edwards**. We are going to do better than we have done, but in the meantime until we finally develop our policies we will have to do the best we can. We are not going to allow blackouts to occur.

The **Chairman**. Now also on this question of how you are going to "meet the load", you say that you will have an 859 megawatt deficit at best, and then you go down a list of things, none of which are sure. You say that the transmission line will be built by 1991 for Hydro Quebec, yet I read Hydro Quebec has announced that drought conditions in Northern Quebec where its hydro electric plants are located will probably force it to stop selling in the Northeast the 690 megawatts of electricity called for by the 1986 contract.

That is far from sure that you will be able to continue to get that power even if you build the line, is it not?

Mr. **Edwards**. That is correct. I think our ability to get that power is going to depend on the domestic needs of the seller. Certainly their allegiance is to Canada before the United States and I do not blame them for that.

The **Chairman**. Actually, we are doing Canada a great favor by paying for the initial cost of their power until they need it, and when they need it they will use it. That is what they ought to do. That is not being anti-American. That is what they built the plants for, is it not?

Mr. **Edwards**. That is smart business. That is exactly right. Some of that goes on in the United States. We build power plants in certain regions of the country and sell it to out of state until we need it and then bring it back into our system at a depreciated rate.

The way we are going to need it, Senator, right now if we have to do it in a hurry we have no choice. If you have run all your conservation out, you have run all your co-generation out, you are going to have to put up stuff like gas-fired independent power production plants. We do not have much choice.

As I said, we will need it. The question is how reliable it is going to be and at what price.

I do not think that is good energy policy, and what I said to you here today begs for a national energy policy.

The CHAIRMAN. These gas-fired plants are, first of all, short-lived, highly expensive and subject to tremendous inflation in the price of natural gas and subject to the kind of natural gas cutoffs that we have back in the cold winter of, what was it, 1976, 1977? Which year was it? 1976-77.

That is what you mean by unreliable?

Mr. EDWARDS. Yes, sir.

The CHAIRMAN. It also depends on getting Seabrook available, and if you do not get that available then you will have a deficit?

Mr. EDWARDS. That is correct.

The CHAIRMAN. A bigger deficit than the 859 megawatts.

Mr. EDWARDS. That is correct.

The CHAIRMAN. Now your 859 megawatt deficit is in any event going to have to be supplemented by these gas turbines or other highly expensive, unreliable power?

Mr. EDWARDS. Yes, sir.

The CHAIRMAN. Now Mr. Edwards, you are testifying here on behalf of Edison Electric as well. Has Edison Electric done any analysis of the Shoreham situation?

Mr. EDWARDS. Not to my knowledge, Senator, but I will certainly find out from Mr. McCollum or Mr. Kuhn; and if they have, I will submit it to the committee.

The CHAIRMAN. If Shoreham can close down that plant and build additional capacity cheaper than it can operate Shoreham, why can you not do that with Seabrook?

Mr. EDWARDS. I would be personally delighted with the deal from my ownership chair of Seabrook that LILCO is getting. That would be more than enough for me to recover my investment in it.

I am not nimble enough with the numbers to figure out how that could happen. I can only speak for the Connecticut commission, but I doubt very seriously that the Connecticut commission would allow me as much Seabrook in my rate base if it does not run——

The CHAIRMAN. But you see, they say that they can put it in the rate base, pay for it in the rate base and build new capacity and the ratepayers come out better off than if they went ahead and operated it.

Mr. EDWARDS. Mr. Bradford is a very smart man, and I am sure he has a good staff. I certainly am not in a position to question his analysis of it until I have read it. I do not know how we could do that.

Mr. EICHORN. Senator, if I may, I would like to make just one comment on that.

I think that one of the major differences between Shoreham and Seabrook is Shoreham is a single plant owned by a single utility state, whereas Seabrook is a single plant owned by multiple utilities operating in many states. It would require quite a comprehensive United Nations type deal to be able to put something together like Shoreham has. I do not ever foresee that happening because, amongst other things, many of those utilities are under the FERC control, and they know better that kind of mathematics here than they do perhaps in New York.

The CHAIRMAN. Is it not really patently absurd to say that that can come about? I mean, honestly, the idea of being able to shut down a plant and put it in the rate base, build new capacity and have it come out less, is that not absolutely absurd?

Mr. EDWARDS. John, I am going to be around a lot longer than you. I would rather you answer that. [Laughter.]

Mr. EICHORN. Mr. Chairman, I think you said it quite aptly when you said earlier that the Long Island Lighting did not have much of an opportunity to turn down such an arrangement.

The CHAIRMAN. I have tried to listen here, and I think maybe I have my ears stopped up or something. Something is wrong somewhere, is it not? What is it? Is there some new principal of hydrogen production in a bottle or something, some new scientific principle that has been discovered that allows that sort of thing to take place?

Mr. EDWARDS. No, sir, not that I know of. If there is, I am going to buy some of it.

The CHAIRMAN. Can you speak to the Northeast in general? Did I overstate the situation when I said that the next energy crisis may come in electricity in the Northeast?

Mr. EICHORN. No, you did not overstate it.

Mr. EDWARDS. No, I do not think you overstated it. I think if we have a crisis, that is the most likely area in which it will happen.

As you pointed out, we are just heavily, heavily dependent upon it, in New England especially. We use 25 percent of the nation's oil supply, all of which is imported.

The CHAIRMAN. Now we have tossed around this phrase "reliability'. As I understand it, reliability for business is particularly important because there are many manufacturing processes that when the power goes off or the power goes down it results in a loss. Examples pointed out to me were computers which require cooling, and if you shut off the power it can damage the computers; manufacturing processes, one process that was being described was a melting process. You melt metal and put it through dies, and if the power goes off it cools and congeals or solidifies in place, and you have to shut the whole thing down and go chip it out of the dies.

Are there a lot of manufacturing processes like that that depend upon it, when you talk about reliability?

Mr. EICHORN. Yes, there are, Senator. You were just citing a few of the examples. Another good one would be the manufacturer of lighting equipment. You can foresee a long, fluorescent tube being manufactured in a somewhat of a flexible condition, but once you stop the machinery which is making it you will have a lot of broken glass on the floor.

So there are a lot of continuous operating type processes throughout New England that do suffer during these brownouts last summer and those predicted in the future.

The CHAIRMAN. Now Secretary Watkins said that the price of replacement power for Shoreham was two to five times as high as running Shoreham using oil.

Does that sound correct to you?

Mr. **Edwards**. It sounds correct as far as the fuel used to produce the energy. He is probably talking about oil or gas versus uranium. Certainly the capital cost was not factored in there. The capital cost of building an oil-fired or a coal-fired plant is a lot less than building a nuclear plant.

The fuel itself is considerably more expensive, and additional capacity is going to have to be built. They have done a deal with the state where they can keep themselves in good shape financially, and they are going to have to have capacity from somewhere else. According to all of the numbers that I have heard here and read in other periodicals, they have got to have additional capacity.

The **Chairman**. You heard that statement about if you have a nuclear plant then a tremendous amount of the cost is keeping it in operation, refurbishing it. Now that is really for old plants, is it not?

Mr. **Eichorn**. That is retrofitting to come up to today's standards, but both these plants that we are talking about, Shoreham and Seabrook, are built to today's standards. I think there is a difference, though. You are right.

The **Chairman**. Tell me what that difference is.

Mr. **Eichorn**. The difference is those older plants had to be retrofitted to come up to today's scientific knowledge and today's standards. These plants that we are talking about today are supposedly built to those standards already.

The **Chairman**. So if that is figured in these figures, it would not be a correct cost?

Mr. **Eichorn**. I do not believe so. That is correct. It is trying to extrapolate old technology coming up to today's standards and then saying they are going to have to do the same thing forward looking for these plants that have been built today. I do not see where the wisdom for that comes from.

The **Chairman**. Do you have any judgment about the litigation costs, the self-generated litigation costs?

Mr. **Edwards**. On the Shoreham issue? It is enormous. I think that the only people who have profited in the delay of Seabrook are the consultants and the lawyers, and they have made a lot of money. God bless them.

The **Chairman**. When my father used to practice law, he used to say that the safety of the republic lies in a well-paid bar.

Mr. **Edwards**. The costs are enormous.

The **Chairman**. We have a safe country.

Mr. **Edwards**. That is right. We sure do.

I know I cannot quantify it for you, Senator, other than to tell you they are big numbers. They are really big, big numbers.

The **Chairman**. Gentlemen, thank you very much. I have to apologize and go to a luncheon which I am hosting, but before I turn it over to Senator McClure, I want to thank you very much for excellent testimony.

Senator McClure.

Senator **McClure** [presiding]. Thank you very much, Mr. Chairman.

I would ask unanimous consent that the report of the State of New Hampshire of November 30, 1988 on the State Electrical

Energy Needs Planning Committee be made a part of the file and the executive summary made a part of the record of this hearing. If there is no objection, it will be so ordered.

[The report follows:]

STATE OF NEW HAMPSHIRE

REPORT OF THE

STATE ELECTRICAL ENERGY NEEDS PLANNING COMMITTEE

OF THE

NEW HAMPSHIRE GENERAL COURT

1776

NOVEMBER 30, 1988

STATE OF NEW HAMPSHIRE

Report of the
STATE ELECTRICAL ENERGY NEEDS PLANNING COMMITTEE
# of the
NEW HAMPSHIRE GENERAL COURT

Presented by

Dennis A. Hebert, Chairman
New Hampshire Governor's Energy Office

November 30, 1988

STATE OF NEW HAMPSHIRE

STATE ELECTRICAL ENERGY NEEDS PLANNING COMMITTEE

November 30, 1988

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Senator George Freese
Senator Clesson Blaisdell
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Ralph S. Johnson, Public Service of New Hampshire
Thomas Tarpey, Essex Hydro Associates
Harold Turner, Jr., Business and Industry Association

CONTRIBUTING INDIVIDUALS

Representative Beverly Rodeschin
Wyatt Brown, Public Service of New Hampshire
Mark Collin, UNITIL Service Corporation
Dennis Delay, Public Service of New Hampshire
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Lois Schmelzer

STATE OF NEW HAMPSHIRE

STATE ELECTRICAL ENERGY NEEDS PLANNING COMMITTEE

November 30, 1988

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STATE OF NEW HAMPSHIRE

STATE ELECTRICAL ENERGY NEEDS PLANNING COMMITTEE

November 30, 1988

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STATE OF NEW HAMPSHIRE
STATE ELECTRICAL ENERGY NEEDS PLANNING COMMITTEE
SECTION I
EXECUTIVE SUMMARY

The State Electrical Energy Needs Planning Committee began work in July of 1987 and completed its work in November of 1988. In fulfilling its charge the committee:

1) reviewed electrical energy planning objectives,
2) completed the state's first statewide load forecast;
3) compiled an inventory of existing and committed generating resources;
4) projected a likely scenario for meeting future needs if existing policies and practices do not change and;
5) recommended actions to ensure that the state's future energy needs are met.

The analysis and considerations leading to the above can be found in Chapters II through VII of the full Committee report. The material in each Chapter is highlighted below.

II. Overview of the very important role of electric power in our daily lives.

III. Overview of the institutional and economic environment factors which affect the current and potential future production of electric power. This includes observations about correlations between the State's economic development and its power consumption.

IV. Review of the planning process used for determining New Hampshire's energy requirements and the influence of the planning process on environment, source diversification and cost.

V. Review of the forecast for New Hampshire's energy demands and the derivation of high, low and probable forecasts for energy and peak load demands.

VI. Identification of resources on the supply and demand sides and review of hypothetical resources.

VII. Policy recommendations.

A. Planning Objectives

The Committee decided that energy planning must (1) guarantee that the supply be adequate to meet anticipated net demand for electricity; (2) that "least cost" methods be utilized in comparing alternative means of meeting the needs; and (3) that the factors of reliability, risk, and environmental consequences be incorporated into the planning.

This planning framework, known as integrated resource planning, is now required of our electric utilities by the N.H. Public Utilities Commission. As the PUC observed, the objective is, "to satisfy future demand with the optimal combination of supply-side resources and demand-side programs." The result should be, again in the words of the PUC, "to satisfy ratepayer's energy service needs at the lowest overall cost consistent with the reliable supply of electricity. Overall cost in this context includes compliance with public policies in regard to environmental and social concerns as well as financial considerations."

B. Load Forecast

The Committee has prepared three forecasts: a base case, a high demand growth case, and a low demand growth case. Each one has been projected out 22 years (1988-2010).

The load forecasts are based on many assumptions. Among the most important assumptions are:

a. The state's population growth and economic growth will be as forecast by the New England Economic Project (1988-1990) and by the N.H. Office of State Planning (1991-2010).

b. The price of New Hampshire's electricity will remain nearly constant (in real terms) over the period of the forecast.

c. No major energy price shocks from OPEC, Seabrook or other sources will occur.

d. Short-term business cycles are not taken into consideration.

e. No public or utility policy changes or consumer behavior changes in regard to consumption or conservation will occur over the forecast period.

f. The annual peak electric load will grow at the same rate as total electrical energy sales.

The resulting base forecast is for energy consumption and peak loads to grow at an average rate of 3.6% for the period 1987-2003. The growth rate is projected to be somewhat higher in the early years, reaching a maximum of 5.6% in 1990, and lower in the later years, reaching a low of 2.7% in 2001.

Alternative projections were developed for slightly different assumptions. The "low growth" case results in an average growth of 2.8% per year while the "high growth" case shows a projected average growth of 4.9% per year.

C. Inventory of Existing Resources

The Committee completed an inventory of existing and committed resources. The resources included all utility-owned and non-utility-owned generating facilities, long and short-term contracts for the purchase of power from out-of-state sources, and existing utility-sponsored programs for the management of peak power demand and conservation. Committed resources included Seabrook, Hydro Quebec Phase II and small power producers not yet in operation.

D. Likely Scenario

The Committee prepared a hypothetical resource plan showing how the state's utilities are likely to approach their requirement to meet the projected gap between demand and resources under the existing environment. New resource options are likely to be selected on the basis of four attributes: (1) relatively short lead times; (2) relatively small investments; (3) high probability of regulatory support; and (4) a high/probability of success and/or completion.

The additional resources most likely to be acquired are, in approximate order of priority:

- purchase of intermediate and peaking power, if available
- effective implementation of peak-shaving demand options
- staged construction of small combustion turbines and combined cycle units
- purchase of non-utility power from relatively small non-utility facilities
- life extension or repowering of existing facilities
- effective implementation of other demand control options

To illustrate this scenario, the Committee projected one likely outcome which incorporates the following additional resources by the year 2005:

200 Megawatts of peak-reduction programs
200 Megawatts of conservation programs
life extension of PSNH's Schiller and Merrimack plants
1500 Megawatts of new generating facility capacity, including both utility-owned and non-utility-owned (added at about 100 per year through year 2000)

E. Recommendations

After review of all the materials, the Committee developed the following specific recommendations:

1. General Principles

a) The utilities responsibility shall be to insure an electrical supply adequate to reliably meet reasonable demand estimates at reasonable prices.

b) The responsibility of the State of New Hampshire is to provide legislation and regulatory decisions (including rulemaking) to make this possible.

c) The Federal Government should be encouraged to allow the State planning and implementation process to proceed by minimizing the Federal role necessary to meet safety and environmental objectives.

2. State Planning

a. The Committee urges the Nuclear Regulatory Commission to promptly resolve all outstanding questions relating to the Seabrook Nuclear Power Plant.

b. The Committee recommends that the New Hampshire General Court investigate the procedures for siting, licensing and operation of energy facilities for efficiency and fairness. The Committee further recommends that the N.H. General Court investigate the procedures of public involvement to insure that neither state nor local practices unduly hinder the process.

c. The Committee supports the New Hampshire Public Utilities Commission's efforts to encourage a multiple resource approach as embodied in the New Hampshire Least Cost Planning process and documented in Section IV of this report.

d. The Committee recommends that the New Hampshire Public Utilities Commission prepare a biennial report on the results of the New Hampshire Least Cost Planning process.

3. Regional Planning

a. The Committee recommends that the State support the efforts of the New England Governor's Conference Power Planning Committee to monitor the efficiency and effectiveness of the New England Power Pool (NEPOOL).

b. The Committee recommends that representatives of the State and the State's utilities continue to negotiate with potential electrical energy suppliers from outside the State.

c. The Committee recommends that the New Hampshire Public Utilities Commission conduct a study to consider the feasibility of New Hampshire utilities remaining in NEPOOL and various alternatives including, but not limited to, creation of a utility organization composed of New Hampshire, Maine and Vermont utilities and/or creation of a Northern New England Power pool combined with the Eastern Canadian provinces. The Committee further recommends that the New Hampshire General Court appropriate sufficient funds to conduct such study.

d. The Committee recommends that appropriate State agencies encourage the construction of natural gas pipeline(s) into the State or region to increase the availability of gas as an energy resource where economically and environmentally feasible. Additional gas might be used either as a fuel for the generation of electricity or as a source of local energy to meet needs which might otherwise be tied to the electrical network.

4. Legislative Policy

a. The Committee recommends the New Hampshire General Court continue to recognize the potential negative long term impacts of legislation on the implementation of the New Hampshire Least Cost Planning process such as that prohibiting excess capacity as proposed in HB708 in the 1987 and 1988 sessions.

b. The Committee recommends that the New Hampshire General Court review the existing legislation relative to Construction Work in Progress (CWIP). Alternatives to the current legislation could include revising the current CWIP legislation to provide some participation by ratepayers in risk of capital projects but also protect ratepayers against excessive costs.

c. The Committee recommends that the New Hampshire General Court broaden the statutory definition of electric utilities to encourage the provision of energy services and not just electricity. For example, customer services for conservation and services to cogenerators could be provided by utilities and potential legal barriers to such action should be removed.

5. Regulatory Policy

a. The Committee recommends that the New Hampshire Public Utilities Commission evaluate (study) electric rate structures and cost recovery processes to permit equal consideration by utilities of all resource options.

b. The Committee encourages appropriate State agencies to monitor and participate before the Federal Energy Regulatory Commission to insure that Federal regulatory actions are consistent with State policy. The Committee further recommends that the New Hampshire General Court provide adequate resources to fund that activity.

The Committee offers the preceding recommendations after analyzing the possible electrical energy needs of the state and the various alternatives for meeting these needs. The Committee believes that these recommendations will insure diversity and flexibility in the electrical supply system and aid in the development of a least cost plan to meet future energy needs.

STATE OF NEW HAMPSHIRE

STATE ELECTRICAL ENERGY NEEDS PLANNING COMMITTEE

SECTION II

INTRODUCTION

Although it has only become widely available during this century, electricity is one of the major cornerstones of our way of life. Today, we literally eat, drink, sleep, work and wake with the help of electricity. In fact, only rarely are we not directly dependent on it. To the credit of the electric utilities, we are not often conscious of our dependence. The reliability of their service has left many of us unaware of the extent of the system behind the light switch. We are only reminded when the system is threatened or fails.

Today the system is threatened. The challenges emanate from many sources both within and outside the utility industry. The environmental consequences of 20th century industrialization are becoming apparent to growing numbers. The cost of adding new generation no longer reflects the large economies of scale which once allowed new plants to produce electricity more cheaply then the old ones they were replacing. In many states, the consistency of the regulatory system is being questioned by the utilities and the financial community. Plants which are constructed and necessary are not allowed to operate. Utilities across the nation, which only a few years ago were accused of exaggerating future demand now are accused of minimizing growth forecasts to postpone new plant construction.

In New Hampshire these trends and concerns manifested themselves around the construction, financing and proposed operation of the Seabrook Nuclear Power Plant. Public debate regarding the desirability of nuclear power, uncertainty as to the plant's operation and further uncertainty as to its rate impact should it operate, all made electric energy policy a highly charged political issue beginning in the late 1970's. In addition, this debate has led regulators, the industry and public policy makers to focus on questions of short term energy supply and demand to the potential detriment of long range planning.

It is in the environment of these changing circumstances that the New Hampshire General Court passed Senate Bill 153 in 1987. That law, RSA 374, (see Appendix A) established the State Electrical Energy Needs Planning Committee, consisting of four members of both the House of Representatives and the Senate. The law also named ten ex-officio members representing state agencies, utilities, alternative power producers and environmental and conservation interests and charged them with studying the possible electrical needs of the state.

As defined in the legislation, the committee was directed to:

1. Study the possible electrical energy needs of the state for the next 30 years, and various alternatives for meeting these needs. The committee may hold public hearings, take written or oral presentations from interested persons, and review books, reports, and other materials deemed pertinent to the purpose of the committee.

2. Report to the governor and council, the speaker of the house, and the president of the senate on the committee's recommendations to meet the state's electrical energy needs for the next 30 years.

The committee first met in August of 1987 and again when it began to address its charge on June 6, 1988. The committee held several meetings as it conducted its study and prepared this report. Additionally, much work was done by subcommittees which were created to address specific tasks. Early in its deliberations the committee identified significant problems in attempting to forecast over the prescribed thirty year period and chose instead to concentrate on the period through the year 2006. Also early in its work, the committee agreed that there were three compelling concerns in planning for the state's electrical energy needs. These concerns are 1) cost, 2) reliability and 3) risk management.

It is not enough simply to meet the electrical energy needs of the state. Those needs must be met at a cost which retains the state's current, positive economic climate and maintains appropriate and consistent allocation of costs among customer classes. The reliability of the system must be high so that the risk that the system will fail, that power will not become available when needed, is low. The reliability of the transmission and distribution must be high, as must the quality of the electrical energy delivered. Voltage reductions and power spikes have the potential to damage appliances, computers and manufacturing equipment. The issue of risk management must also be considered when choosing among various resource options. The possibilities of fuel supply interruption; the discovery of additional adverse environmental impacts requiring drastic curtailment of a fuel source; and changing public opinion toward energy sources must be considered in risk management.

The committee reviewed its task recognizing these concerns and chose to divide it into three major projects. Project one was to review past regional and utility specific electrical demand forecasts and to produce for the first time, a projection of demand for the state as a whole. New Hampshire specific data was obtained from the utilities, NEPOOL, the Public Utilities Commission, the Governor's Energy Office and the Office of State Planning which reflected the latest economic and demographic projections (Section V).

Project two was to prepare an inventory of the existing and committed electrical energy resources being utilized by the state's utilities, and of the options potentially available to meet the projected demand (Section VI).

The third and final project was the review of present policy and consideration of alternative policy options. This required projecting the likely impacts of today's policies and the alternatives. The final report concludes with policy recommendations in Section VII designed to ensure the continued energy needs of the citizens of the state of New Hampshire are dealt with in a responsible manner.

STATE OF NEW HAMPSHIRE
STATE ELECTRICAL ENERGY NEEDS PLANNING COMMITTEE
SECTION III
INSTITUTIONAL AND ECONOMIC ENVIRONMENT

INSTITUTIONAL ENVIRONMENT

Public utilities have the obligation to serve all customers in their service territories. Each public utility operates under price and financial regulation at either the state or federal level in exchange for exclusive franchise territories. The bulk of New Hampshire's electrical energy needs have been supplied by the investor-owned electric utilities. Specifically, the state's households, business and industrial firms are provided their electrical energy needs by five investor-owned utilities, one electric cooperative and five small municipal utilities. These public utilities have system peak demands ranging from just a few megawatts to over 1400 megawatts (MW).

Public Service Company of New Hampshire (PSNH) is the largest utility in the state, providing over 3/4 of the state's electrical energy needs with a system peak demand of over 1400 MW. Concord Electric Company and Exeter & Hampton Electric Company are distribution subsidiaries of the New Hampshire-based UNITIL Corporation, collectively serving a peak demand of about 182 MW. Granite State Electric Company (114 MW) is a distribution subsidiary of the Massachusetts based New England Electric System. Connecticut Valley Electric Corp. (32MW) is a distribution subsidiary of the Vermont-based Central Vermont Public Service Corporation. These four distribution utilities secure their firm power requirements from affiliated companies. The New Hampshire Electric Cooperative serves a peak demand of about 155 MW. The Coop secures about 144 MW of firm power requirements from PSNH, owns a 6 MW entitlement in the Maine Yankee nuclear generating station and purchases its remaining firm power requirements.

These utilities are all members of the New England Power Pool (NEPOOL), which dispatches the electrical generation and transmission system that provides approximately 99 percent of all the electrical power generated and sold in New England. NEPOOL coordinates the planning and operations of its members to achieve economies of scale, to minimize operating costs, to conserve fuel, and to increase the overall reliability of the bulk power system. Despite these far reaching responsibilities NEPOOL neither owns nor constructs generation or transmission facilities nor does it have any formal power to direct its member utilities to construct such facilities. The decision to finance and construct facilities is entirely at the discretion of the management of each utility. Therefore, in order to function properly and be effective, the pool must work with a system of incentives and sanctions to create an efficient and reliable pool-wide system of transmission and generation.

The NEPOOL agreement is now undergoing extensive scrutiny by both its member utilities and governmental and regulatory groups such as the New England Governor's Power Planning Committee. The NEPOOL agreement is likely to be amended with the goal of enhancing the efficiency of delivering electrical services to New England. Therefore, the NEPOOL agreement will continue to have an impact on New Hampshire utilities and their customers.

For most of its history the electric utility industry was able to increase sales while taking advantage of increasing economies of scale, declining costs, and efficiencies made available from new and ever larger power plants and improved transmission and distribution networks. The result was that the price of electricity fell steadily through out the post war period until the early 1970's, when new forces began to change the industry.

The utility planning environment today is characterized by a number of major features which have developed over the last 15 years. The most significant characteristic of this environment is the strong disincentive for construction of highly capital intensive, long lead time generating facilities. This disincentive has been created by a combination of economic and institutional forces which have dramatically changed the utility planning environment.

Major economic forces have included the accelerating inflation and rising real interest rates, intensifying business cycles and a growing reliance on volatile foreign sources for major production inputs (i.e. fossil fuel) experienced during the 1970's and 1980's. These changes have been beyond the control of utilities or their regulators, and have had a lasting impact on the industry.

In addition to these economic forces a number of institutional forces have impacted the industry. Environmental regulation and both state and federal regulatory decision processes have substantially lengthened the time required to build and construct major generating and transmission facilities. Bulk power markets are a growing phenomenon in the electric utility industry. Of particular impact is that bulk power markets have allowed capacity short utilities to avoid capacity additions in an age of uncertainty and increased risk.

The one regulatory and institutional change that perhaps has had as much if not more of an impact on the industry than all the other changes is the growth of a third party in the utility generation markets, namely: the Qualifying Facility (QF) industry created by Section 210 of the Public Utility Regulatory Policies Act of 1978 (PURPA). The Federal Energy Regulatory Commission (FERC) has begun to review its relatively long standing policies regarding the implementation of PURPA. The development of PURPA and the FERC's center stage role has created a variety of points of contention between state and federal regulation in the areas of power supply planning and the mandates of the FERC under PURPA. The FERC is currently considering new regulations relative to QF avoided cost administration, a new category of Independent Power Producers (IPP), transmission access, and competitive bidding for new power sources. The QF market and the relatively new IPP industry are viewed by many as potentially dominant source of incremental supply.

The new regulatory and political environment includes more vigorous regulatory involvement in the affairs of utilities, which has encouraged utilities to be more responsive to political concerns. In general this may be positive, although some claim that it has been taken to the point where resource options may be selected by utilities more on the basis of political acceptability than on the basis of technical and economic merit as perceived by the utility. The New Hampshire Anti-CWIP statute is one example of such of a direct political intervention which brought on allocation of risk to utility financial involvement in a capital-intensive, long lead time project. It is clear that utilities will tend to make choices that will have a high probability of regulatory and political acceptance.

A final observation about the political environment is that demand side resources are often advocated as if they were the solution for all utility requirements. Positive efforts to promote demand side resources as an additional and flexible resource may be appropriate, but some observe that unwise advocacy may negatively influence the pursuit of other supply resources. Such a course would be dangerous if, as many believe, demand side resources are much harder to acquire than advocates believe and involve significant uncertainty and risk.

In summary the utility planning environment has changed. Until the 1970's loads were growing at a steady pace and they could be forecast by projecting the historical trend. Growth was generally rapid; if forecasts were too high, capacity built ahead of demand would be needed in a few years. If forecasts were too low, combustion turbines could be added to meet growth for a few years until new base load capacity could come on line. Today in contrast the industry is facing increasingly volatile demand for electricity in an increasingly competitive environment. Today utility planning requires more analysis and informed judgment. As a result utility planning is inherently more uncertain and vulnerable to error. The inherent uncertainty of utility planning today imposes risks and it is necessary to plan in light of these risks.

ECONOMIC ENVIRONMENT

A critical step in studying New Hampshire's long term electrical energy needs is to assess the state of the local economy. In order to perform the assessment, key indicators of local economic health and well being need to be examined.

The condition of the New Hampshire economy can be measured by a number of variables. Generally the data used to measure economic health include employment, personal income, gross state product (GSP) and other measures of the business climate. Such data are used primarily because they are valid economic indicators, as well as being readily available.

The recently published **New Hampshire State Development Plan** contains an excellent analysis of the State's current economic condition. That report examines the indicators of unemployment rate, labor force, employment by sector, GSP and state revenue. As shown in the direct quote below, the report concludes that the State is in excellent condition.

> "The data and trend analysis provided in this section show that the state of New Hampshire economy is excellent. The state's unemployment rate is currently the lowest in the nation. Total employment figures for the state increased 56 percent from 1973 to 1985. Major growth sectors in terms of employment are the services and trade industries. These two industries contributed 43 percent of total employment for 1985. New Hampshire's labor force participation rate has been at least 84 percent since 1977. In 1986, 87 percent of the state's working age population was in the labor force.
>
> "New Hampshire's per capita personal income for 1986 is higher than the national average. For all but one year in this past decade, New Hampshire's per capita income has increased at a greater rate than the New England average. Since 1979, New Hampshire's growth rate in this indicator has surpassed that of the national average. New Hampshire also fares well in comparisons of gross state product. New Hampshire's gross state product has increased at a faster pace than that of New England for the previous ten years. Within the state, New Hampshire GSP has shown steady increases since 1976.
>
> "State unrestricted revenue has increased substantially since 1981. Business profits, room and meals and real estate transfer taxes contributed 44 percent of state unrestricted revenue for FY 1986. Increases in these sources reflect growth in the state's economy. Increases in state revenue have contributed to a healthy financial status for the state. The state has had budget surpluses for the past four years."
>
> \- New Hampshire State Development Plan, John H. Sununu, Governor, July 1, 1988; Summary page 15.

New Hampshire Compared to New England and the United States

New Hampshire has had one of the most productive economic climates in the country, whether measured by performance or the potential to attract new industry. But how does the State compare to the region and the nation? And also how have sales of electricity in each area responded to the changes in economic conditions?

The table below compares changes in Real Gross State Product through the 1980's for New Hampshire, New England and the United States. As can be seen, both New Hampshire and New England have outperformed the nation in the 1980's. After the 1982 recession, United States Gross National Product increased on average about 4 percent annually. However in the same time period, New England Gross Regional Product increased about 7 percent annually, while New Hampshire Gross Product increased nearly 9 percent annually.

Real Gross Product, 1982 Dollars
New Hampshire, New England and United States

	New Hampshire		New England		United States	
	Mill. of Dollars	Percent Change	Mill. of Dollars	Percent Change	Mill. of Dollars	Percent Change
1981	11,365	--	165,232	--	3,180,889	--
1982	11,606	2.1%	164,575	-0.4%	3,104,127	-2.4%
1983	12,656	9.0%	176,370	7.2%	3,217,707	3.7%
1984	13,734	8.5%	190,663	8.1%	3,429,242	6.6%
1985	14,848	8.1%	201,612	5.7%	3,548,207	3.5%
1986	16,187	9.0%	214,904	6.6%	3,664,078	3.3%
Annual Average Change						
1982-1986		8.7%		6.9%		4.2%

- Survey of Current Business, Bureau of Economic Analysis, May 1988; deflated by the Implicit Price Deflator

Electricity sales in the three areas also increased in the 1980's. Following the 1982 recession, United States electricity sales increased about 3 percent annually, compared to almost 5 percent for New England and nearly 6 percent for New Hampshire. Clearly New Hampshire has been a leader in the region and the nation in the 1980's, both in terms of economic growth and in terms of electrical energy growth.

Electric Energy Sales to Ultimate Customers
New Hampshire, New England and United States

	New Hampshire		New England		United States	
	Mill. of KWH	Percent Change	Mill. of KWH	Percent Change	Mill. of KWH	Percent Change
1981	6,093	--	77,886	--	2,150,700	--
1982	6,144	0.8%	77,681	-0.3%	2,099,700	-2.4%
1983	6,384	3.9%	81,715	5.2%	2,159,800	2.9%
1984	6,787	6.3%	86,397	5.7%	2,280,600	5.6%
1985	7,099	4.6%	88,282	2.2%	2,305,900	1.1%
1986	7,540	6.2%	92,356	4.6%	2,355,300	2.1%
1987	8,041	6.6%	97,193	5.2%	2,446,300	3.9%
Annual Average Change 1982-1987		5.5%		4.6%		3.1%

- Edison Electric Institute and Electric Council of New England

Correlation Between Electricity and Economic Growth

Based on the data in the preceding section, there is a correlation between economic growth and electricity growth. Observation of historical data for New Hampshire, New England and the United States reveals that areas with high economic growth (New Hampshire's and New England's being greater than for the United States as a whole, and New Hampshire's being greater than New England's) also have greater electricity sales growth.

Table III-1 and Figure III-1 examine the relationship between New Hampshire electricity consumption, energy consumption and economic growth from a longer term perspective. Since the mid-1960's state electrocute consumption and gross state product have growth at about the same rate, while total energy consumption (e.g., oil, gas, hydro etc. in total) has lagged. In fact, total energy consumption in 1986 is nearly equal to its 1977 value, while GSP and electricity have increased considerably over the last ten years. Although this does not demonstrate whether economic growth causes electricity growth or vice versa, electricity growth and economic growth in New Hampshire has been correlated.

The Committee recognizes that meeting the electricity energy needs of the economy is an important social concern. Failing to meet this need at a reasonable cost could cause economic disruption and undermine economic strength.

STATE OF NEW HAMPSHIRE Table III-1

STATE ELECTRICAL ENERGY NEEDS PLANNING COMMITTEE

Electricity, Energy and Gross State Product
New Hampshire 1966-1986

Year	Electric (GWH)	Energy (BTU)	GSP ($82)	----Index 1966=100---		
				Electric	Energy	GSP
1966	2,389	132.7	5,625	100.0	100.0	100.0
1967	2,682	137.6	5,810	112.3	103.7	103.3
1968	3,013	146.4	6,151	126.1	110.3	109.4
1969	3,319	163.2	6,661	138.9	123.0	118.4
1970	3,669	174.2	6,770	153.6	131.3	120.4
1971	4,022	187.3	7,118	168.4	141.1	126.5
1972	4,498	199.1	7,348	188.3	150.0	130.6
1973	4,908	202.7	7,866	205.4	152.8	139.8
1974	4,904	193.1	7,781	205.3	145.5	138.3
1975	4,895	188.9	7,718	204.9	142.4	137.2
1976	5,314	213.0	8,438	222.4	160.5	150.0
1977	5,469	215.3	9,348	228.9	162.2	166.2
1978	5,832	215.6	10,263	244.1	162.5	182.5
1979	6,056	192.1	10,740	253.5	144.8	190.9
1980	6,072	189.4	10,882	254.2	142.7	193.5
1981	6,093	180.9	11,365	255.0	136.3	202.0
1982	6,144	182.6	11,606	257.2	137.6	206.3
1983	6,384	182.3	12,656	267.2	137.4	225.0
1984	6,787	195.0	13,734	284.1	146.9	244.1
1985	7,099	201.0	14,848	297.2	151.5	264.0
1986	7,540	216.2	16,187	315.6	162.9	287.8

Sources

Electricity Sales for Total Electric Utility Industry from Electric Council of New England Statistical Bulletin 1986

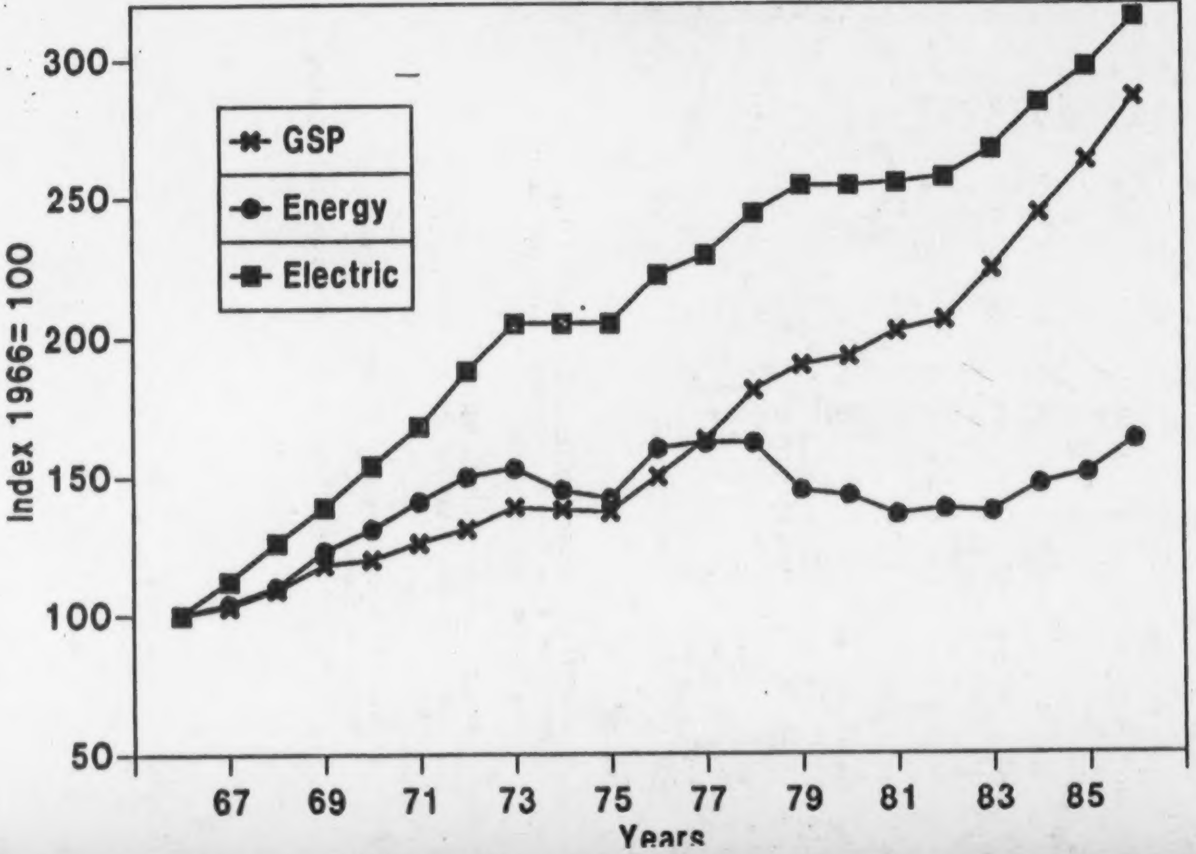
Energy Consumption from Energy Information Administration State Energy Data Report, 1960-1986

Gross State Product from US Dept of Commerce, Bureau of Economic Analysis; converted to 1982 dollars by dividing by the GNP Implict Price Deflator

Figure III-1

STATE ELECTRICAL ENERGY NEEDS PLANNING COMMITTEE

Electricity, Energy and Gross State Product
New Hampshire
1966-1986



STATE OF NEW HAMPSHIRE
STATE ELECTRICAL ENERGY NEEDS PLANNING COMMITTEE
SECTION IV

NEW HAMPSHIRE'S PLANNING PROCESS

BACKGROUND

The concept of least cost planning is the basis of traditional utility practice, whose goal is to provide "safe and reliable service at just and reasonable rates." It is fundamentally the engineering standard of establishing the design criteria and seeking the least cost option within those criteria and can be illustrated by Gillette and Dana's 1918 definition of engineering as the "application of science to the problems of economic production. The engineer's ultimate aim, therefore, is to effect a desired result at a minimum cost." (Handbook of Mechanical and Electrical Cost Data). The concept early became a regulatory and legal standard. The U.S. Supreme Court's Bluefield decision emphasizes that the return provided to a company should be adequate to allow a utility "under efficient and economic management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties..."

While the concept of least cost planning has traditionally applied to all aspects of utility operations, the current focus of its proponents is on electric utility capacity during planning. Even in this specific area, however, least cost has always been the basic standard by which to choose among alternatives to achieve the utility's adopted goals. At any particular point, capacity additions have been chosen when they were thought to be the least cost option over the relevant time period.

As traditionally practiced by utilities, however, least cost planning was characterized by three premises. First, it was an engineering standard , dealing with facilities and equipment of known capabilities. Utility planners tended to be uncomfortable with reliance on the probabilities of non-utility actors (either customers or independent entrepreneurs) acting in certain ways. Second, it was a utility standard, and assumed that facilities would and should be designed and controlled by the utility company. Utility planners were doubtful that even reputable non-utility firms had the same standards of long term reliability that characterized the utility company. Third, a consequence of the utility's obligation to serve was that demand was taken as a given. The relevant question was restricted to what facility to fit under the utility's projected demand curve.

The uncertainty and competition of the 1970's led to important changes in approaches to utility planning. The turning point for electric utilities and the commissions that regulated them was the publication in 1979 of the study by Roger Sant, The Least Cost Energy Strategy: Minimizing Consumer Costs Through Competition. Building on the work by Amory Lovins, it attempted to determine how the U.S.

energy situation would have changed if consumers had foreseen the economic realities in energy of the late 1970's and had responded in terms of their own economic self interest. While the study addressed all forms of energy, regulators found of particular interest the hypothetical drop in purchased electricity from a 30% share of the energy market to 17% and the increase from 10% to 32% of the share of technological improvements in energy efficiency.

State legislatures and commissioners in the early 1980's began to attempt to capture some of these economies through mandated programs, in particular by placing greater emphasis on conservation as a resource and integrating demand side considerations in siting evaluations. At the federal level, least cost planning was adopted as a tool for improving the efficiency and reducing the costs of the electric utilities, and thereby enhancing the economic productivity and global competitiveness of American industry at large. Concurrent with the new emphasis on efficiency, conservation and other demand side programs were state and federal efforts to expand alternative power supply options under the aegis of the Public Utilities Regulatory Policies Act of 1978 (PURPA). However, while these efforts were contemporary with demand-side programs, they were generally on a separate track rather than being integrated into a comprehensive strategy. Thus in the early 1980's some commissions focused on alternate non-utility sources of supply (small power producers and cogenerators) while others concentrated on conservation and demand side management.

Since November 1985, when the U.S. House of Representative Committee on Science and Technology reported that "most states have not made significant progress toward implementation of a comprehensive least-cost strategy", state commissions have embraced the concept of least cost planning to a remarkable degree. According to a June 1988 Electric Power Research Institute, (EPRI) Report, least cost planning programs were underway in 25 states, being developed in 11 states and being considered in 7.

While each state has developed its own definition, that of the Texas commission is one of the most explicit. It describes least cost planning as:

> ... "planning to meet projected electricity needs through the integration of demand and supply side resources on the basis of a periodic evaluation of resource availability and cost; the utilization of resources most likely to produce the lowest electric rates over the planning period consistent with a reliable supply of electricity; and compliance with applicable safety, environmental, and public policy requirements."

The important elements in this definition are the integration of demand and supply side resources with supply encompassing independent energy producers as well as utility sponsored facilities; the emphasis on least cost over the planning period; and the recognition of non-cost criteria of reliability, and safety, environmental and other public policy standards.

A phrase that is largely synonymous with least cost planning is "integrated resource planning." The latter term was originally preferred by many utilities, and more recently by environmentalists and conservation proponents because it de-emphasizes the cost criterion of least cost planning. Utilities preferred to use "integrated resource planning" in order to emphasize the importance of long term reliability and dependability and to some extent to question the value of capacity from qualified facilities or the dependability of conservation by customers. Conservationists began to use the term in the era of excess capacity as a framework for continuing to promote decreased usage regardless of whether investment in conservation was a least cost strategy when marginal capacity has a zero value.

NEW HAMPSHIRE'S LEAST COST PLANNING PROGRAM

Prior to 1988, the New Hampshire Legislature and Public Utilities Commission addressed different components of a least cost plan as individual elements but did not require the formulation of an integrated least cost plan. Demand-side management and conservation were encouraged through the conservation efforts of the Governor's Energy Office and the enforcement of Energy Code by the PUC, and separate cases for individual utilities on such filings as interruptible rates and time differentiated rate designs. Pursuant to RSA 362-A, The Limited Electrical Energy Producers Act, since 1978 the PUC has encouraged the development of alternative energy projects (Qualified Facilities or QFs) in the state. Utility demand forecasts and utility sponsored supply plans have been submitted annually to the New Hampshire Bulk Power Supply Facility Site Evaluation Committee.

In April 1988, the PUC concluded a two year investigation into the term, conditions and avoided cost methodologies for electric sales by QFs to all New Hampshire electric utilities. In its final order, the Commission noted that there was a "broad consensus among the parties that the policy established by the Commission emphasize flexibility and encourage direct negotiation between the utilities and the QFs." However, it also found that such a system of flexible negotiations could not be effectively implemented unless the commission established an appropriate framework for the negotiations. It stated:

> "We find that the proper goal for the commission policy regarding short term and long term utility purchases of energy and capacity from QFs is the integration of QFs into the utility's own long term resource planning in an efficient and equitable manner. Therefore, the necessary framework for utility negotiations with QFs must be that of utility long term resource planning. One necessary outcome of these proceedings is the need to develop and implement a process in which the commission can evaluate all demand-side and supply-side resource additions, including QFs, to the utilities' systems."

Accordingly, the PUC required each utility to file biennially in even numbered years the reports and analyses of an integrated least cost resource plan. It observed that:

> "the objective of the integrated least cost resource plan is to satisfy future demand with the optimal combination of supply-side resources and demand-side programs. Thus, the plan must provide a comprehensive and detailed assessment of all reasonably available demand-side and supply-side utility investment options to satisfy ratepayer's energy service needs at the lowest overall cost consistent with the reliable supply of electricity. Overall cost in this context includes compliance with public policies in regard to environmental and social concerns as well as financial considerations."

The required filing will consist of reports on the following areas and must include explicit treatment of the risk and uncertainty of the forecast scenarios and their sensitivity to various assumptions:

1) Forecast of future demands
2) Assessment of demand-side options
3) Assessment of supply-side options
4) Assessment of transmission constraints and requirements
5) Integration of demand-side and supply side options
6) Two-year implementation plan and forecast
7) Avoided cost forecast

The least cost planning program will be phased in, with the initial submission of an avoided cost forecast filed October 1, 1988, discussions of the specifics of reports between October 1988 and April 1989, and the complete series of reports due April 6, 1989. The Commission anticipates that it will hold hearings following the April filings to review each utility's integrated least cost resource plan and planning process, and provide additional guidance on the format and content of the reports. The plans will be refiled the following year (April 1990) and in alternate years thereafter.

NON COST FACTORS

Utility planners have two options in integrating non-cost factors into the least cost planning process. The factors can be introduced as one of the constraints the result is required to satisfy. The alternative is the development of a number of resource plans of approximately the same level of cost, and then choosing among them based on a balancing of non-cost considerations. The three categories of non-cost factors most often addressed as separate issues in least cost planning are reliability, risk and the environmental consequences.

Most utility resource planning assumes a given level of reliability as one of the fundamental criteria. In capacity planning the American utility industry standard is the probability of one incident every ten years. Thus, the issue of reliability is internalized in the analysis itself.

Non-utility resources pose particular problems in assessing system reliability. Utilities have considerable experience in measuring the probabilities of the planned and unplanned outages of their own units, but far less in transferring those measurement techniques to either demand-side programs or to non-utility facilities. In the former instance, planners must estimate initial customer response to the introduction of a program (response to the marketing of conservation) and the degree to which the utility can rely on demand-side programs in the long term. This latter concern has been termed the "snap back effect", and is particularly considered a possible source of long term unreliability for programs that involve the customer lowering the level of his energy services rather than obtaining equivalent energy services more efficiently (i.e., using fewer KWH for heating by lowering thermostats rather than by installing added insulation).

The issue of the reliability of non-utility facilities involves first whether the facility will be on-line at the summer and winter peaks when they are most needed, a problem addressed at least in part by dispatching arrangements and pricing incentives. The second issue is whether qualified facilities with no obligation to serve are reliable in the long term if the relationships between input prices and rates change. Again, reliability can be partially enhanced by the design of rates in the power purchase contract.

The planning process may become simplified once the planners obtain the requisite experience in estimating the probabilities assignable to the reliability of all types of resources. The selected resources in the individual scenarios would be weighted by the probability that they will be available when required and resources added to assure that all scenarios meet the same criterion of reliability. Absent other non-cost criteria, the planner can then choose the scenario with the lowest net present value of revenue requirements during the planning period.

There are two aspects to the issue of risk in capacity planning neither of which is easy to capture in planning models. The first is that different resource plans have different levels of vulnerability to errors in the assumptions on which the calculations, and choice of a capacity expansion plan, were based. There is a presumption in current planning that diversity and flexibility have virtues in mitigating the risk of error. A resource plan that utilizes a variety of resources is less likely to be vulnerable to incorrect assumptions of fuel or construction costs than one that depends primarily on one type of facility or program. Similarly, a plan that emphasizes small increments of capacity additions is less likely to be vulnerable to incorrect assumptions of load growth than a plan that involves a commitment to a single plant with a lengthy construction schedule and that offers no option for mid-course corrections.

Sensitivity analysis can be performed to determine the cost range for each scenario as variables such as interest rates, inflation, fuel escalation rates and load growth are changed. The analysis may indicate that the least cost plan under base case assumptions may be significantly more sensitive to the risk of incorrect forecasts and may no longer be the least cost alternative under the changed, perhaps less likely assumptions. The planner will then have to decide what levels of forecasting risk are acceptable.

The second aspect to the question of risk is that different resource plans share risk differently between utility stockholders and ratepayers. In New Hampshire, for example, base load plants apportion more of the risk of construction cost and licensing delays to stockholders. In contrast, peaking units and QF purchases apportion more risk to ratepayers as uncertain fuel costs are flowed through fuel adjustment clauses.

Finally, it is clear that different resource plans would result in different effects on the environment. Concern over acid rain and the greenhouse effect, for example, has enhanced the beneficial externalities of such technologies as hydroelectric and solar production and demand-side management and conservation programs and favors natural gas and nuclear facilities over coal or oil based plants. Similarly, public reservations concerning the environmental risk posed by nuclear plants have resulted in construction and licensing delays for new plants.

The issue for the energy planner, however, is whether environmental concerns should be a separate consideration, or simply one of the constraints of the analysis. If the latter, concern over the environmental consequences of any resource plan is reduced to the satisfaction of the relevant environmental standards imposed by outside federal and state agencies. All resource plans would be required to satisfy environmental regulations in the same way they are required to meet health and safety regulations or the local zoning laws.

The alternative is the development of a number of resource plans of approximately the same level of cost reliability and risk, and choosing among them based on the environmental consequences. This alternative places the energy planner in the position of establishing his own environmental standards, which is not necessarily a policy action the planner has the legislative mandate to perform.

STATE OF NEW HAMPSHIRE

STATE ELECTRICAL ENERGY NEEDS PLANNING COMMITTEE

SECTION V

FORECAST OF NEW HAMPSHIRE DEMAND

The State Electrical Energy Needs Planning Committee was charged with studying the possible electrical energy needs of the state for the next thirty years. Early in its deliberation the Committee identified significant problems in attempting to forecast over the prescribed thirty year period. Most significant was the fact that the economic forecast used by the Committee only went out to the year 2010. Therefore the Committee chose instead to develop a load forecast and alternate scenarios for the period 1987 through the year 2010.

Tables V-1 through V-3 show the results for State energy sales and winter peak load. Each table displays energy sales to ultimate customers (at the meter), winter peak load for the year beginning and the annual growth rate for each of the forecast cases. Also included on each table is a brief summary of the assumptions underlying the load forecast case. The 1987 starting points on each table are based on an estimate of New Hampshire energy sales to ultimate customers from the Electric Council of New England (ECNE), and an estimate of weather corrected 1987/88 New Hampshire peak load. Figures V-1 and V-2 compare the three scenarios for energy sales to ultimate customers and peak load respectively.

ASSUMPTIONS

Any forecast consists of a set of assumptions and such a forecast is conditional based on those assumptions. In this regard the Committee wants to clearly state both the implicit and explicit assumptions that underlay the forecasts.

- The Committee is relying on assumptions and methodologies derived in other models to develop its own projections. Specifically, the Committee is relying on the New Hampshire Office of State Planning and the New England Economic Project for economic growth projections. The Committee also relies on NEPOOL for the insight into the relationship between the economy and electrical energy consumption and the sensitivity of electrical energy consumption to alternate conditions.

- Energy prices are an extremely important forecast variable and, based on historical experience, will be one of the most important determinants for the future demand for energy. Electricity and alternative fuel prices affect the consumption of electric energy now and in the future. The quantification of the response to price changes is commonly termed the price elasticity of demand, and all forecasts have price elasticity incorporated as a part of the forecast methodology. Therefore any forecast should be considered contingent upon assumptions regarding future energy prices, as well as the assumed price elasticity of demand.

The Committee is again depending upon NEPOOL for assumptions regarding future energy prices and price elasticity of demand. The energy price forecast used by NEPOOL for New Hampshire (and underlying the Committee's own base case forecast) calls for electricity prices to stay nearly constant in real terms and for oil and gas prices to increase in real terms over the forecast period. Specifically, NEPOOL estimates that the real price of electricity will increase by 0.4 percent per year from 1987 to 2003. The real price of fuel oil is expected to increase by 1.3 percent annually over the period 1987 to 1995 and 4.5 percent annually over the period 1995 to 2003. The real price of natural gas is expected to increase at a rate of 4.1 percent annually over the period 1987 to 2003. No major energy price shocks, such as OPEC, Seabrook, QP or other related energy price increases, are assumed in the forecast. Also NEPOOL estimates that the aggregate price elasticity of demand within their model to be -0.28 in the short term and -0.75 in the long term.

Any significant difference between actual and estimated prices and price elasticity can be expected to cause a significant variation between actual and forecast electricity demand. Variation in the demand forecast will also mean a difference in the potential resources for meeting future customer requirements. As an example, higher than expected electricity prices would make some demand side options more economic, thereby increasing the market penetration of these options and lowering overall electricity demand. Likewise, alternative supply technology options would also become more economic, thereby further closing any potential gap between supply and demand.

* Population growth in the base case indicates a continuation of significant growth in New Hampshire population and, by implication, the New Hampshire economy.

* Business cycle effects are not considered in the projections of State population growth. These forecasts are trend forecasts rather than cycle forecasts. The implication is that actual sales in the future will certainly be different from forecast, due to business cycle effects and weather conditions. That consideration aside, the long term trend is still reasonable for planning purposes.

- The peak load forecasts contain no significant demand-side intervention by utilities or others to try to limit the growth in peak demand. Programs that are designed to reduce peak growth (e.g. load management, peak reduction and shift, non price induced conservation, additional government mandated efficiency programs, etc.) are not included in the peak forecasts. These types of programs are considered by the Committee under the Resources/Demand Options section of the report.

- New technologies which could significantly add or subtract to load are not explicitly considered in the forecast.

To summarize, the base case forecast recommended by the Committee relies on the NEEP forecast for the period 1988-1990 and the growth rates from the OSP forecast for the years 1991-2010. The long term growth rates for the OSP forecast are applied to the 1990 level from the NEEP forecast to develop long term levels of population, and hence, electricity sales.

The high and low forecasts developed by the Committee rely on existing NEPOOL model sensitivity work, applied directly to the Committees growth rate estimates for the most likely or base case. A more complete description of the forecast development is contained in Appendix B to this report.

RESULTS

The results of the forecast effort has yielded a base case forecast growth rate for the State electrical energy (sales and peak load excluding demand side management) that will average 3.6 percent growth annually for the period 1988 to 2010. The low growth scenario projects 2.8 percent annually and a high growth scenario projects 4.9 percent annually for the same time period. The Committee notes that growth in the short-term will be much higher than the average for the base case recommended here.

The final energy sales to ultimate customers forecast is also "benchmarked" for the most recent actual data. That is the growth rates derived from the above method are applied to a 1987 New Hampshire energy sales of 8,041 million kilowatt-hours in order to get the forecast values. The 1987 energy sales to ultimate customers figure is an estimate from the Electric Council of New England.

Peak load forecasts were developed to be matched against the menu of resource options (which includes demand-side management programs). The peak load forecasts were developed using the annual sales growth rates for each of the three cases applied to the 1987/88 weather corrected and reconstituted State peak value of 1,697 MW to develop peak load forecasts before demand-side management.

The Committee has used energy sales growth rates applied to a weather corrected peak load estimate to develop peak load forecasts net of demand-side management. The underlying assumption her is that peak load, net of demand-side programs, will grow at approximately the same rate as energy sales in the forecast period. The peak load forecasts contain no significant demand-side intervention by utilities or others to try to limit the growth in peak demand. Programs that are designed to reduce peak growth (e.g. load management, peak reduction and shift, non price induced conservation, additional government mandated efficiency programs, etc.) are not included in the peak forecasts. These types of programs are considered by the Committee under Section VI.

One of the more interesting outputs of the forecast base case is a breakdown into end uses. Table V-4 shows the end use detail underlying the base case GWH sales estimates. The detail shown was developed using the NEPOOL model and additional detail from the Electric Power Research Institute. The table clearly reveals that largest single end-uses (lighting and industrial motor drives) will continue to be the largest end-uses through the turn of the century.

Table V-1

STATE OF NEW HAMPSHIRE

STATE ELECTRICAL ENERGY NEEDS PLANNING COMMITTEE

State of New Hampshire Electric Energy and Peak Forecast

Base Case Forecast

Year	Energy Sales (GWH)	Winter Beginning Peak (MW)	Growth Rate
1987	8,041	1,697	
1988	8,443	1,782	5.0%
1989	8,850	1,868	4.8%
1990	9,342	1,972	5.6%
1991	9,763	2,061	4.5%
1992	10,160	2,144	4.1%
1993	10,569	2,231	4.0%
1994	11,048	2,332	4.5%
1995	11,560	2,440	4.6%
1996	12,027	2,538	4.0%
1997	12,397	2,616	3.1%
1998	12,815	2,705	3.4%
1999	13,240	2,794	3.3%
2000	13,623	2,875	2.9%
2001	13,988	2,952	2.7%
2002	14,368	3,032	2.7%
2003	14,807	3,125	3.1%
2004	15,285	3,226	3.2%
2005	15,762	3,326	3.1%
2006	16,250	3,429	3.1%
2007	16,752	3,535	3.1%
2008	17,270	3,645	3.1%
2009	17,804	3,757	3.1%
2010	18,355	3,874	3.1%
Average Annual Growth Rate 1988-2010	3.6%	3.6%	

Assumptions:

NEEP 6/88 population forecast to 1990, OSP trend population forecast thereafter; NEPOOL 4/88 State of New Hampshire Model Assumptions adopted regarding energy-economy relationship

STATE OF NEW HAMPSHIRE

Table V-2

STATE ELECTRICAL ENERGY NEEDS PLANNING COMMITTE

State of New Hampshire Electric Energy and Peak Forecast

LOW Case Forecast

Year	Energy Sales (GWH)	Winter Beginning Peak (MW)	Growth Rate
1987	8,041	1,697	
1988	8,443	1,782	5.0%
1989	8,782	1,853	4.0%
1990	9,200	1,942	4.8%
1991	9,542	2,014	3.7%
1992	9,854	2,080	3.3%
1993	10,171	2,147	3.2%
1994	10,550	2,227	3.7%
1995	10,955	2,312	3.8%
1996	11,310	2,387	3.2%
1997	11,568	2,441	2.3%
1998	11,865	2,504	2.6%
1999	12,163	2,567	2.5%
2000	12,418	2,621	2.1%
2001	12,651	2,670	1.9%
2002	12,894	2,721	1.9%
2003	13,185	2,783	2.3%
2004	13,505	2,850	2.4%
2005	13,818	2,916	2.3%
2006	14,135	2,983	2.3%
2007	14,459	3,052	2.3%
2008	14,791	3,122	2.3%
2009	15,130	3,193	2.3%
2010	15,477	3,266	2.3%
Average Annual Growth Rate 1988-2010	2.8%	2.8%	

Assumptions:

Variant from base case using NEPOOL sensitivity work; low economic/demographic, high oil prices, high appliance efficiency, increased industrial electrification.

STATE OF NEW HAMPSHIRE — Table V-3

STATE ELECTRICAL ENERGY NEEDS PLANNING COMMITTEE

State of New Hampshire Electric Energy and Peak Forecast

HIGH Case Forecast

Year	Energy Sales (GWH)	Winter Beginning Peak (MW)	Growth Rate
1987	8,041	1,697	
1988	8,443	1,782	5.0%
1989	8,960	1,891	6.1%
1990	9,574	2,021	6.9%
1991	10,131	2,138	5.8%
1992	10,674	2,253	5.4%
1993	11,243	2,373	5.3%
1994	11,898	2,511	5.8%
1995	12,604	2,660	5.9%
1996	13,277	2,802	5.3%
1997	13,859	2,925	4.4%
1998	14,506	3,061	4.7%
1999	15,175	3,203	4.6%
2000	15,812	3,337	4.2%
2001	16,441	3,470	4.0%
2002	17,101	3,609	4.0%
2003	17,846	3,766	4.4%
2004	18,654	3,937	4.5%
2005	19,479	4,111	4.4%
2006	20,334	4,291	4.4%
2007	21,228	4,480	4.4%
2008	22,160	4,677	4.4%
2009	23,134	4,882	4.4%
2010	24,150	5,097	4.4%
Average Annual Growth Rate 1988-2010	4.9%	4.9%	

Assumptions:

Variant from base case using NEPOOL sensitivity work; high economic/demographic growth, low oil prices, reduced appliance efficiency.

Figure V-1

STATE ELECTRICAL ENERGY NEEDS PLANNING COMMITTEE
LOAD FORECAST
GWH Sales Alternates

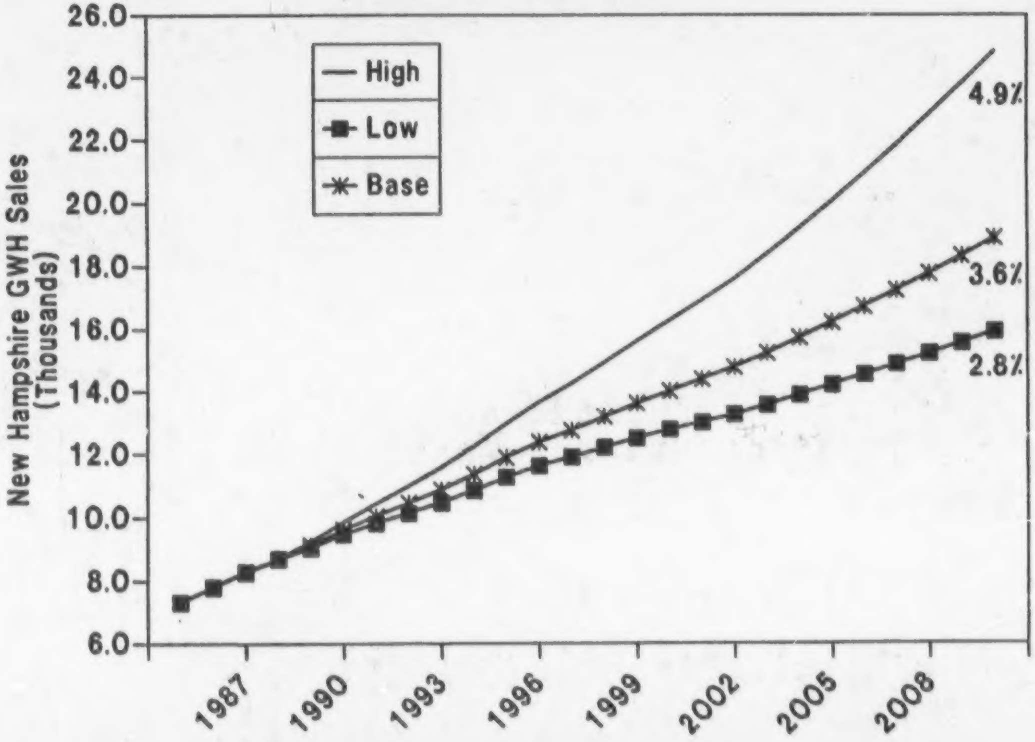
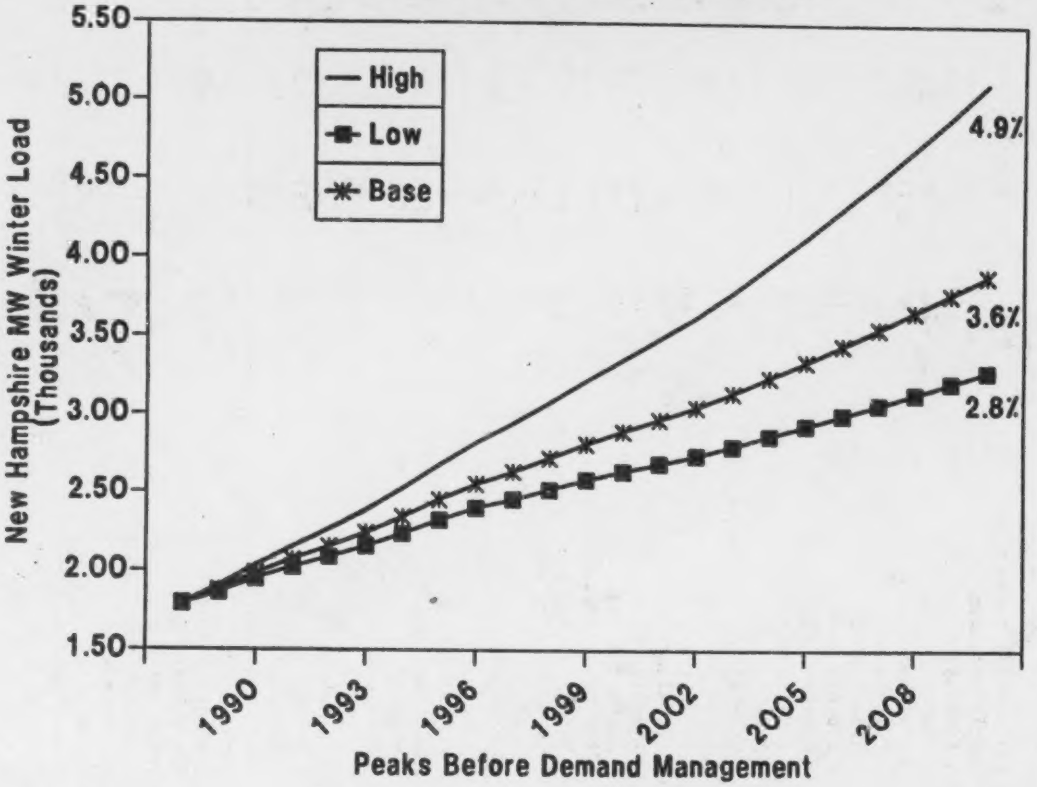


Figure V-2

STATE ELECTRICAL ENERGY NEEDS PLANNING COMMITTEE
LOAD FORECAST
Winter Peak Load Alternates



STATE OF NEW HAMPSHIRE Table V-4

STATE ELECTRICAL ENERGY NEEDS PLANNING COMMITTEE

End-Use Detail in ENC Base Case Forecast

	1987	1992	1997	2002
ENC ESTIMATE - GWH Sales	8,041	10,160	12,397	14,368
Residential Sales	3,291	4,220	5,254	6,048
Refrigerators	435	519	632	736
Freezers	124	154	184	212
Ranges	241	297	356	397
Lighting	189	222	253	264
Television	245	275	274	328
Dish Washer	55	77	98	110
Clothes Washer	26	33	39	42
Clothes Dryer	193	254	313	338
Water Heaters	828	1,125	1,475	1,751
Room A/C	37	51	69	80
Central A/C	22	32	46	55
Space Heating	511	655	833	951
Heating Aux	66	74	81	82
Miscellaneous	320	451	602	702
Commercial Sales	3,028	3,816	4,503	5,133
Space Heating	411	546	680	773
Air Conditioning	182	235	290	348
Ventilation	335	418	493	580
Water Heating	83	114	141	166
Cooking	26	31	36	39
Refrigeration	288	338	385	424
Lighting	1,650	2,046	2,344	2,600
Miscellaneous	53	87	134	203
Industrial Sales	1,722	2,124	2,640	3,187
Dryers	83	103	129	158
Furnaces	77	94	117	144
Lights	40	49	61	75
Motors	1,353	1,669	2,073	2,493
Other	91	111	138	170
Space Heating	78	97	122	148
Lighting	1,879	2,318	2,658	2,939
Industrial Motors	1,353	1,669	2,073	2,493
Space Heating	1,000	1,297	1,634	1,872
Water Heating	911	1,239	1,616	1,917
Space Cooling + Ventilation	576	736	898	1,063
Refrigeration	847	1,011	1,201	1,371
Residential Appliances	519	639	724	818
Miscellaneous	529	723	954	1,156
Cooking	267	329	392	436
Process Heating	161	198	246	301
ENC ESTIMATE - GWH Sales	8,041	10,160	12,397	14,368

STATE OF NEW HAMPSHIRE

STATE ELECTRICAL ENERGY NEEDS PLANNING COMMITTEE

SECTION VI

IDENTIFICATION OF RESOURCES

The process of identifying, selecting and implementing the appropriate set of resources to meet load requirements is complex and technical. It requires forecasting key economic parameters such as fuel prices; engineering analysis of current and future technology options; analysis of demand side options, and market forecasting; careful balancing of all cost and risk factors, along with consideration of legal and regulatory policy issues that directly or indirectly influence the feasibility of the various technical and institutional options.

The Committee examined data and information about the existing utility resources for the State of New Hampshire, and prepared a twenty-year profile of existing resources and compared it to the forecast. Complete resource projection information from public utilities was only available through October of 2006. That information was compared to the Section V load forecast and is graphically depicted in Figure VI-1.

The peak load for the state, excluding any future conservation or load management programs is forecast to grow from 1782 MW in 1988 to an estimated peak load of 3429 MW by the year 2006 in the base case. This forecast assumes an average annual growth rate of 3.6%. However in addition to covering peak load utilities must also maintain an appropriate reserve margin to allow for planned and unplanned generator outages and other contingencies. The total capacity requirements are therefore the forecasted loads plus required reserves estimated at 25% of peak load. Therefore the total capacity requirements are forecast to grow from 2288 MW in 1988 to 4286 MW by the year 2006.

The blocks in Figure VI-1 correspond to existing, committed resources as identified by the New Hampshire utilities in documents filed with the Commission, grouped generally by type of resource. The shaded blocks correspond to resources now in operation and include existing hydro, nuclear, oil, gas and coal generating facilities as well as contract utility purchases and purchases from existing non-utility ("QF") facilities. The dotted block next to the top of the bars represents committed resources which are not yet in service and includes 484 MW for Seabrook (beginning Nov. 1990), 125 MW for Hydro-Quebec Phase II (beginning Nov. 1990), and amounts of non-utility QF purchase increasing to 104 MW in Nov. 1990. In addition the utility companies have certain Demand Side Management programs which represent additional resources represented by the black box on top of the bars. Existing programs include, Clockwatch 6, interruptible rates, off-peak water heating and energy audits to customers. Planned programs include new interruptible load and use of customer generation at the time of peak load, greater emphasis on off-peak and peak load shifting programs by special rate programs. These programs are estimated to produce an additional 100 MW of reduction by 2006.

When existing resources are compared to the forecast it is clear that the state presently does not have resources to meet loads plus required reserves. As a result short term purchases, or reliance on NEPOOL resources, are essential to the State's ability to assure reliable service. Short term purchases are, in fact, important elements of current utility plans, particularly for the period prior to the in-service date of Seabrook.

This analysis further reveals that with Seabrook, Hydro-Quebec Phase II and all the QF's presently under contract, supply resources will be in balance with the expected loads plus reserves for approximately one year, after which resources slowly decline and loads plus reserves slowly climb. By the year 2000, the gap between existing and committed resources and total capacity requirements will have grown to almost 1300 MW. The gap between supply and demand in the year 2000 is over one half of the total supply in that year. This clearly indicates that the State must continue to rely on short term purchases and demand restraint measures prior to the operation of Seabrook, Hydro-Quebec Phase II and all the QF's presently under contract. Significant new resources will also be required in the long run, beginning in the early 1990's.

SUPPLY RESOURCES

The potential resources for meeting future customer requirements are extraordinarily numerous and varied. Both supply and demand resource options offer possibilities, although the characteristics, feasibility and costs of the options are may be very different.

The catalogue of supply technology options demonstrating the range of options is shown on Table VI-1. The options are sorted into the categories of commercial technology, life extension technology and advanced technology, and information illustrating some of the general characteristics of the options is included. The table shows capital cost only and does not reveal total cost effectiveness of each option. Such analysis would include projections of fuel cost, plant life and other analysis beyond the scope of this table. The technological options identified in Table VI-1 also do not reflect the range of institutional options under which any specific technological option could be implemented. The institutional options include various opportunities for utility ownership and operation, as well as opportunities for purchases of the power from specific facilities built and operated by other utilities or non-utility parties. A review of such institutional options is identified in Table VI-2.

In addition, the construction and operation of any given supply technology option will give rise to a number of issues, such as siting and licensing, which will have to be addresses by whatever party undertakes to construct and operate the facility. A list of key issues applicable generally to new facility construction by any party are also identified in Table VI-2.

DEMAND RESOURCES

With respect to demand options, the potential for any given technology to act as a future resource by reducing electrical demand and consumption, is a function of several variables:

* The total market for the affected end-use.
* The technical savings potential of the options.
* Saturation and penetration of the option in the marketplace.

Table VI-3 presents a catalogue of commercial technologies demonstrating the range of potential options for demand side programs. The catalogue is divided into end-uses according to the residential commercial and industrial category. Information is included on sample conservation technologies, energy savings potential, whether the end use is a candidate for load reduction or control, and what sample programs would be applicable to specific end uses. Even cataloguing the possible options for demand side resource options is difficult due to the incredible diversity of end-uses, customer groups, types of marketing or incentive programs, and the overlapping character of rate, control, incentive and regulation efforts, all of which may apply to specific targets.

Further complication exists with respect to both the type of institutional arrangements they may apply to given programs as well as the issues that have to be addressed in the process of program design and implementation. Table VI-4 presents a listing of institutional options for demand side option implementation, as well as a catalogue of important program design and implementation issues for demand side options.

HYPOTHETICAL RESOURCE PLAN

Given the existing resource inventory and the above resource options, utilities will, through the planning process, identify and select those options required to meet future requirements. However, as discussed previously, that identification and selection will be heavily influenced by the current legal and regulatory framework. More specifically, it is important to note that the regulatory and political environment, as perceived by utilities and utility investors, plays a significant role in the utility planning process. Essentially, the regulatory and political environment creates the set of rules, particularly the cost recovery rules, within which the utility must plan and implement its resource acquisition efforts as required to fulfill its primary obligation, that of providing reliable service to its customers.

The most likely future resource scenario, based on the existing planning environment, will be characterized by four attributes. Specifically, all resource options selected will have relatively short lead times, will involve relatively small investments, will have a high probability of regulatory support, and will have a high probability of success and/or completion.

More specifically, the most likely utility resource acquisition would include the following, in approximate order of priority:

- purchases of utility intermediate and peaking resources, if available in the marketplace.
- effective implementation of peak shaving demand options, specifically those with proven capability, low investment cost, and minimal impacts on utility operations.
- staged utility construction of relatively small combustion turbines and combined cycle units (dual fueled with oil and gas, to the extent gas is available).
- purchase of non-utility power from relatively small facilities as required to meet baseload or base/intermediate needs (coal, wood, MSW, gas fuels).
- life extensions or repowering of existing utility facilities, where available.
- effective implementation of other demand options with proven capability, low costs, and minimal impacts on operations.

To demonstrate the outcome of the above option selections, a Hypothetical Future Resource Plan for the State of New Hampshire was developed. The plan incorporates a target of 200 MW of contributions from peak reduction demand side management programs by the year 2005, as well as 200 MW of contributions from conservation programs. Life extensions for the older Schiller and Merrimack units are incorporated. New supply resource construction begins with roughly 100 MW per year of Combined Cycle, QF baseload and additional CT units. By the year 2005, around 1,500 MW of new capacity would have to be built.

The plan is portrayed in Figure VI-2. The figure shows the deficiency of resources both including and excluding the planned future resources of Seabrook, Hydro-Quebec Phase II and new non-utility facilities, and compares it with the hypothetical resource plan discussed above. The graph shows that in the year 2000 the deficiency of resources will be 1,347 MW with planned future resources (Seabrook et al) and a 2,010 MW deficiency without planned resources. The numbers used to generate Figures VI-1 and VI-2 are contained in Appendix C to this report.

In the short term, the deficiency will have to be met with utility purchases, as the lead time for any new facilities extends well beyond

1990. Note also that if any of the planned resources, including Seabrook, are further delayed and/or canceled, the additional utility purchase will be required in the short term, and additional new resources may be required in the longer term.

OBSERVATIONS

The hypothetical resource plan identified the most likely scenario of new utility resource acquisitions required to fill expected needs. The plan is based on observations concerning the regulatory and political environment and on the planning objectives and strategies of utilities.

Effective implementation of demand side programs will require consumer acceptance and perhaps, lifestyle changes. It will also require encouragement from policy makers and balancing of incentives and disincentives for utilities. At present such a balance does not exist, because of a lack of legal and regulatory guidance and experience with the recovery of demand side program costs in rates. Demand side program success will reduce sales by utilities, thereby reducing revenues and reducing earnings which are based upon the margins included in sales revenue. Eventually, the sales reduction may be compensated for in future rate cases, but in the meantime, demand side options face a severe financial disincentive in comparison with supply options.

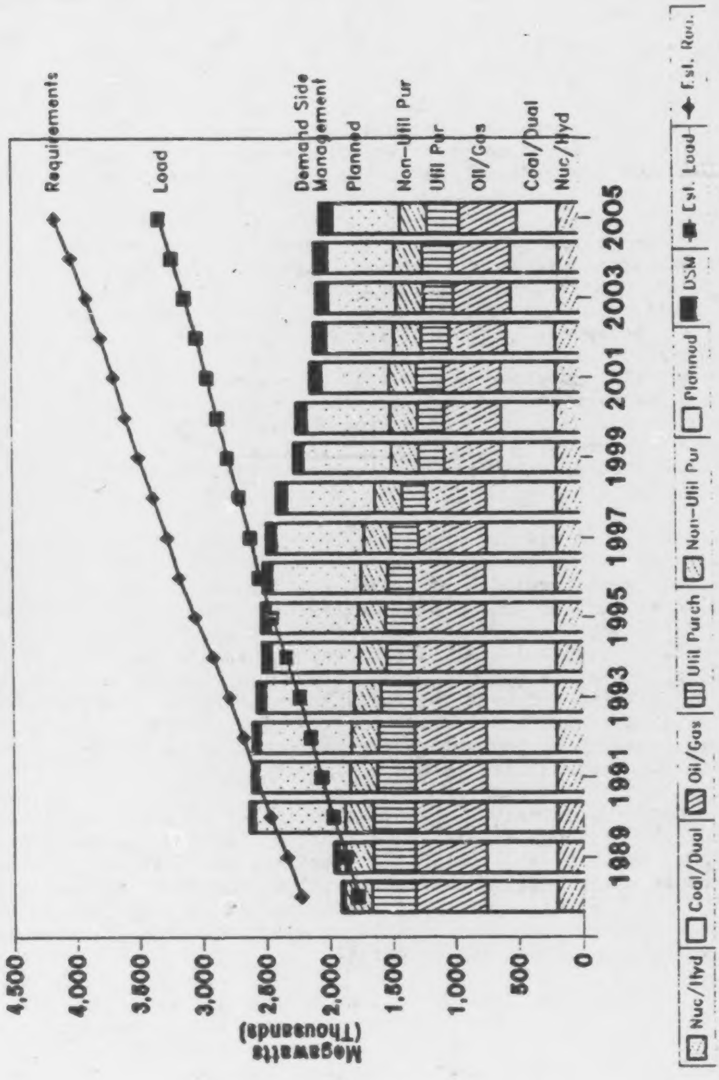
An option missing from the above list is utility constructed baseload facilities, e.g. coal or nuclear facilities large enough to capture some economies of scale. Certain disincentives are imposed by policies outside of the direct control of New Hampshire policy makers. In particular, nuclear design and licensing, and future environmental legislation on acid rain and/or carbon dioxide emissions would appear to be the most important policy issues for nuclear and coal projects respectively. However the Anti-CWIP statute is also perceived to be a significant disincentive for large capital intensive projects because cost recovery of prudently incurred costs for a prudently abandoned project is prohibited in New Hampshire.

Canadian purchases are often mentioned as a source of additional supply. Although excessive reliance on foreign suppliers has its risks, it is clear from an engineering standpoint that Canada can produce electricity from its natural resources at a competitive cost. Additional power imports will be dependent on construction of additional transmission facilities and resolution of reliability and power systems stability concerns.

One final observation is that natural gas supplies, either for utility or non-utility electric projects, are a necessary fuel source for the above resource plan. At present, pipeline capacity does not exist in New Hampshire or New England that would enable significant additional gas-fired generation to be installed. A timely resolution of the FERC Open Season process to address the many proposals for natural gas pipelines in the Northeastern United States is necessary for approval of additional pipeline supply being made available to New England.

Figure VI-1

STATE ELECTRICAL ENERGY NEEDS PLANNING COMMITTEE
New Hampshire Electric Supply Plans
11/88 through 10/06



ELECTRIC SUPPLY RESOURCE OPTIONS
A CATALOGUE OF TECHNOLOGIES
DEMONSTRATING THE RANGE OF POTENTIAL OPTIONS

TABLE VI-1

TECHNOLOGY TYPE	FUEL TYPE	RANGE OF SIZES (MW)	VERY APPROX. COST ($/KW)	EXPECTED AVAIL-ABILITY (%)	APPROX. EFFICIENCY OR HEATRATE	COMMENTS:
COMMERCIAL TECHNOLOGY						
Combustion Turbine Peaking Unit (CT)	Oil/Gas	30-90	$400	85%	11,000	Flexible and low-cost
Combined Cycle Intermediate Unit (CC)	Oil/Gas	100-400	$600	85%	8,200	Flexible and low-cost
Conventional Steam Turbine Unit	No. 6 Oil	200-800	$1,500	82%	9,000	Baseload/Intermediate
Pulverized Coal-Fired Steam Turbine (assumes flue-gas-desulphurization)	Coal	200-800	$2,500	80%	10,000	Baseload
Pumped Storage Hydro	Electr.	750	$600	92%	75%	Requires pumping energy
Nuclear Light Water Reactor	Nuclear	800-1200	$6,000	70%	10,000	
Nuclear LWR with Improved Licensing	Nuclear	600-1200	$4,000	70%	10,000	Requires significant legal, regulatory change
Nuclear Heavy Water (CANDU) Reactor	Nuclear	600	$5,000	70%	10,000	
Small Cogeneration Steam Unit (may use conventional or fluidized bed technology)	Solid Fuel wood, coal, refuse, etc.	15-90	$2,000	88%	varies	Best applications would serve a significant steam customer
Wind Turbine Generator Unit	Wind	small	$3,000	95%	na	Dependent on unique sites
LIFE EXTENSION TECHNOLOGY						
Oil-Fired Steam Turbine	No. 6 Oil	100-600	$500	below 82%	above 9,000	Dependant on the condition and age of existing unit
Coal-Fired Steam Turbine	Coal	100-600	$550	80%	10,000	Dependant on the condition and age of existing unit
ADVANCED TECHNOLOGY						
Advanced Combustion Turbine Generation	Oil/Gas	150-450	$400	90%	11,000	The CT, CC and coal gassif. technologies can be matched in a modular, staged process of construction
Advanced Combined Cycle Generation	Oil/Gas	200-600	$500	89%	7,300	
Integrated Coal Gassification with CC	Coal	200-600	$2,000	88%	8,800	
Fluidized Bed Combustion Generation	Coal or other fuels	100-600	$2,000	85%	9,500	Smaller units are commercial in Cogeneration applications
Compressed Air Storage	Electr.	50-200	$1,250	83%	4,000	Uses supplemental oil/gas, requires charging energy
Underground Pumped Storage Hydro	Electr.	1000	$1,400	88%	74%	Requires charging energy
Chemical Battery Storage	Electr.	20	$1,000	96%	75%	Requires charging energy
Nuclear High Temperature Gas Reactor	Nuclear	200-800	$4,000	78%	8,500	
Fuel Cell Reaction Technology	Hydrocarb.	10	$2,000	80%	8,000	
Photovoltaic Technology	Sunlight	1-100	?	90%	na	Site and weather dependent

Source: NEPOOL Generation Task Force Assumptions Book (April 1988) and other utility-supplied information.

TABLE VI-2

ELECTRIC SUPPLY RESOURCE OPTIONS
CATALOGUE OF INSTITUTIONAL OPTIONS AND
REVIEW OF NEW FACILITY CONSTRUCTION ISSUES

INSTITUTIONAL OPTIONS:

Direct total utility ownership
Direct joint utility ownership
Indirect utility ownership through utility consortium

Partial utility ownership of a PURPA/LEEPA qualifying facility
Partial utility ownership of an Independent Power Producer

Contract for purchase from utility: full cost, life-of-unit
Contract for purchase from utility: specified terms, conditions

Contract for purchase from PURPA/LEEPA qualifying facility
Contract for purchase from an Independant Power Producer

Partial/total governmental control or ownership of facilities

Utility ownership and construction of needed transmission lines under any of the above options for generation facilities

Purchase of necessary transmission service required for any of the above generation options

NEW FACILITY CONSTRUCTION ISSUES:

Site identification and acquisition
Site licensing and permitting

Facility design and engineering
Facility construction
Facility testing and completion

Interconnection and transmission studies
Acquisition of necessary easements or rights-of-way
Interconnection/transmission design and engineering
Interconnection/transmission construction

Contract negotiation if applicable
Regulatory approvals and reviews
Financing
Cost recovery and sufficiency of investment returns
- Rate recovery for utility project
- Contract payments for non-utility project

ELECTRICAL DEMAND SIDE RESOURCES
A CATALOGUE OF COMMERCIAL TECHNOLOGIES
DEMONSTRATING THE RANGE OF POTENTIAL OPTIONS

TABLE VI-3

END-USE APPLICATION	SAMPLE CONSERVATION TECHNOLOGY	TECHNICAL ENERGY SAVINGS POTENTIAL (%)	CANDIDATES FOR LOAD REDUCTION OR CONTROL	SAMPLE PROGRAMS
RESIDENTIAL:			YES	Public Appeal; time-of-use rates
Refrigerator	High efficiency model	-		Appliance efficiency standards; rebates
Freezer	High efficiency model	-		Appliance efficiency standards; rebates
Cooking	High efficiency improvements	19%		
Lighting	Efficient Replacements	80%		
Television	High efficiency model	-		
Clothes Dryer	High efficiency model	15%		
Dishwasher	Models with no-heat dry cycle	33%		
Water heating	Various efficiency measures	50%	YES	Direct controls with storage/ special rates; insulation services; fuel switching
Air conditioning	High efficiency models	30%	YES	
Space heating	Envelope efficiency improv.	40%	YES	Thermal storage with special rates; dual fuel; building efficiency standards; insulation services; fuel switching; energy audits
COMMERCIAL:			YES	Public appeal; time-of use rates; self-generation
Cooling	High efficiency equipment	30%	YES	!Audit services; energy management controls;
Ventilation	High efficiency equipment	40%	YES	! retrofit program; insulation services
Heating	Envelope and equipment effic.	25%	YES	!
Lighting	High efficiency design/equip.	70%		Lighting retrofits; lighting audits
Refrigeration	Best available measures	60%		
Water heating	Package of measures	40%	YES	Direct controls with storage/ special rates; insulation services; fuel switching
Cooking	Best available equipment	20%		
Miscellaneous	Office equip., motors, etc.	30%		
INDUSTRIAL:			YES	Interruptible, time-of-use rates; self-generation
Motor Drives	High efficiency motors, drives	10%	YES	Interruptible rates, energy management controls
Process heating	Best insulation and control	10%	YES	Interruptible rates, energy management controls
Lighting	Package of measures	32%		Lighting retrofits; lighting audits
Space heating	Package of measures	25%	YES	Audit and insulation services
Dairy farming	Package of measures	40%		

SOURCE: The Power To Spare Report, July 1987, and utility-supplied information.

TABLE VI-4

DEMAND SIDE RESOURCE OPTIONS
CATALOGUE OF INSTITUTIONAL OPTIONS AND
REVIEW OF PROGRAM IMPLEMENTATION ISSUES

INSTITUTIONAL OPTIONS:

- Utility planned and funded
    - Direct utility program
    - Program directed through third-party
- Utility facilitation, customer funding
- Utility planned, funding through shared savings with customer

- Non-utility provider using public funds
- Non-utility provider using utility funds (utility cooperation)
- Non-utility provider using shared savings funding
    - With utility involvement
    - Without utility involvement

- Customer planned and funded (e.g. free market approach)

- Government regulation and standards

PROGRAM DESIGN AND IMPLEMENTATION ISSUES:

- Technical potential of demand side option
- Current market saturation of demand side option
- Potential market share and penetration rates
- Incremental effect of program efforts versus "free riders"
- Cost effectiveness analyses and tests

- Attractiveness, acceptibility of demand side option to customers
- Market research and demand side option promotional strategy
- Participant customer payback
- Impacts on non-participant customers

- Demand side option delivery mechanism and schedule
- Inspection and maintenance of installed options
- Evaluation and measurement of demand side impacts

- Potential conflict between utility program and competitive market
- Development of contracts for providers/ customers as required
- Regulatory approvals and reviews
- Financing
- Cost recovery and sufficiency of investment returns
    - Rate recovery for utility programs
    - Contract payments for third-party providers
    - Impacts on utility revenues and earnings

STATE ELECTRICAL ENERGY NEEDS PLANNING COMMITTEE
New Hampshire Hypothetical Resource Plan
11/88 through 10/06

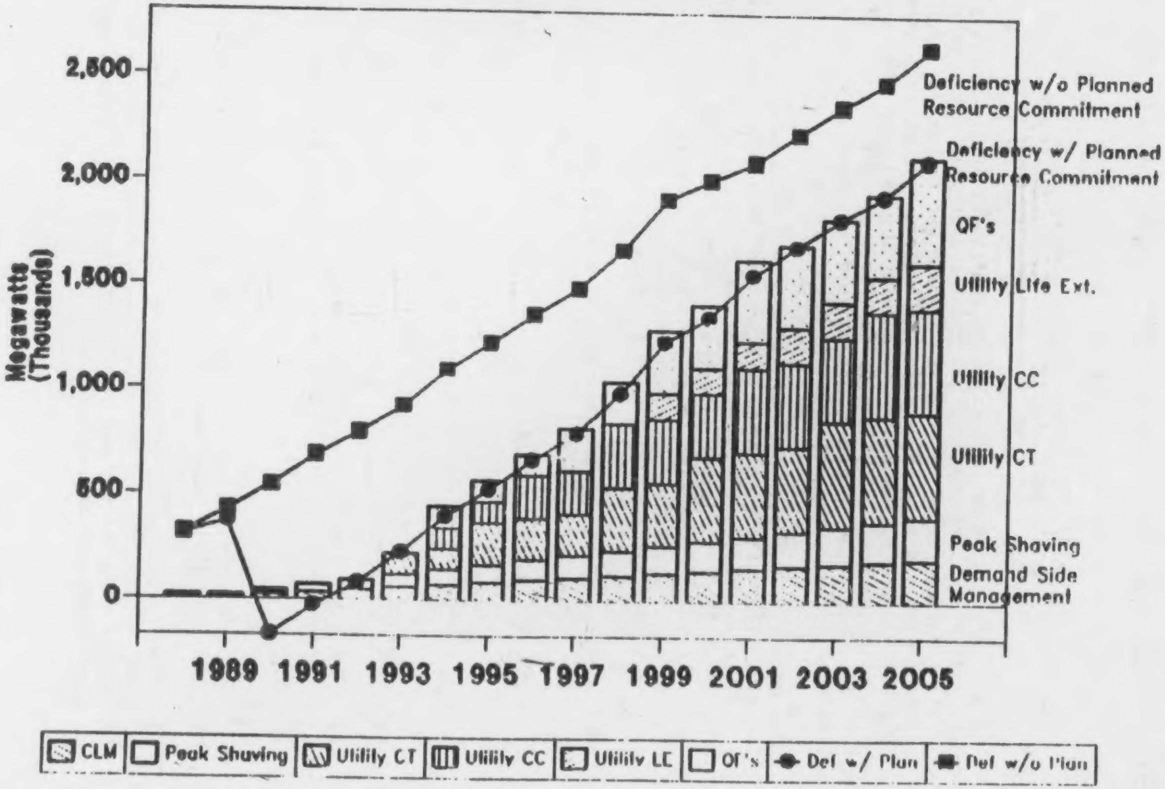


Figure VI-2

STATE OF NEW HAMPSHIRE
STATE ELECTRICAL ENERGY NEEDS PLANNING COMMITTEE
SECTION VII
POLICY RECOMMENDATIONS

It is the position of the Committee that there is a definitive need for additional resources in New Hampshire and the development of such resources must occur as soon as feasible and necessary. Public Policy makers must determine whether the outcome described in Section VI, which would appear to be natural outgrowth of current legislative and regulatory policy, is optimal or desirable for the State. If not, then it is incumbent upon policy makers to determine what changes are required to influence the outcome in a more positive direction.

The Committee presents the following policy recommendations for the consideration of the Governor and Council, the Speaker of the House, the President of the Senate, the New Hampshire General Court, the Public Utilities Commission and public utilities. It is impossible for this Committee to give advice on each of the myriad of situations which can arise. The Committee believes that we must promote policies which are clear and flexible.

The Committee's policy recommendations are grouped into five areas.

1. General Principles
2. State Planning
3. Regional Planning
4. Legislative Policy
5. Regulatory Policy

1. General Principles

a) The utilities responsibility shall be to insure an electrical supply adequate to reliably meet reasonable demand estimates at reasonable prices.

b) The responsibility of the State of New Hampshire is to provide legislation and regulatory decisions (including rulemaking) to make this possible.

c) The Federal Government should be encouraged to allow the State planning and implementation process to proceed by minimizing the Federal role necessary to meet safety and environmental objectives.

2. State Planning

a. The Committee urges the Nuclear Regulatory Commission to promptly resolve all outstanding questions relating to the Seabrook Nuclear Power Plant.

b. The Committee recommends that the New Hampshire General Court investigate the procedures for siting, licensing and operation of energy facilities for efficiency and fairness. The Committee further recommends that the N.H. General Court investigate the procedures of public involvement to insure that neither state nor local practices unduly hinder the process.

c. The Committee supports the New Hampshire Public Utilities Commission's efforts to encourage a multiple resource approach as embodied in the New Hampshire Least Cost Planning process and documented in Section IV of this report.

d. The Committee recommends that the New Hampshire Public Utilities Commission prepare a biennial report on the results of the New Hampshire Least Cost Planning process.

3. Regional Planning

a. The Committee recommends that the State support the efforts of the New England Governor's Conference Power Planning Committee to monitor the efficiency and effectiveness of the New England Power Pool (NEPOOL).

b. The Committee recommends that representatives of the State and the State's utilities continue to negotiate with potential electrical energy suppliers from outside the State.

c. The Committee recommends that the New Hampshire Public Utilities Commission conduct a study to consider the feasibility of New Hampshire utilities remaining in NEPOOL and various alternatives including, but not limited to, creation of a utility organization composed of New Hampshire, Maine and Vermont utilities and/or creation of a Northern New England Power pool combined with the Eastern Canadian provinces. The Committee further recommends that the New Hampshire General Court appropriate sufficient funds to conduct such study.

d. The Committee recommends that appropriate State agencies encourage the construction of natural gas pipeline(s) into the State or region to increase the availability of gas as an energy resource where economically and environmentally feasible. Additional gas might be used either as a fuel for the generation of electricity or as a source of local energy to meet needs which might otherwise be tied to the electrical network.

4. Legislative Policy

a. The Committee recommends the New Hampshire General Court continue to recognize the potential negative long term impacts of legislation on the implementation of the New Hampshire Least Cost Planning process such as that prohibiting excess capacity as proposed in HB708 in the 1987 and 1988 sessions.

b. The Committee recommends that the New Hampshire General Court review the existing legislation relative to Construction Work in Progress (CWIP). Alternatives to the current legislation could include revising the current CWIP legislation to provide some participation by ratepayers in risk of capital projects but also protect ratepayers against excessive costs.

c. The Committee recommends that the New Hampshire General Court broaden the statutory definition of electric utilities to encourage the provision of energy services and not just electricity. For example, customer services for conservation and services to cogenerators could be provided by utilities and potential legal barriers to such action should be removed.

5. Regulatory Policy

a. The Committee recommends that the New Hampshire Public Utilities Commission evaluate (study) electric rate structures and cost recovery processes to permit equal consideration by utilities of all resource options.

b. The Committee encourages appropriate State agencies to monitor and participate before the Federal Energy Regulatory Commission to insure that Federal regulatory actions are consistent with State policy. The Committee further recommends that the New Hampshire General Court provide adequate resources to fund that activity.

The Committee offers the preceding recommendations after analyzing the possible electrical energy needs of the state and the various alternatives for meeting these needs. The Committee believes that these recommendations will insure diversity and flexibility in the electrical supply system and aid in the development of a least cost plan to meet future energy needs.

1322B APPENDIX A
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Chapter 374

SB 153-FN

STATE OF NEW HAMPSHIRE

In the year of Our Lord one thousand
nine hundred and eighty-seven

AN ACT
relative to planning for the long-range
electrical energy requirements of the state.

Be it Enacted by the Senate and House of Representatives in General Court convened:

374:1 Long-Range Electrical Energy Planning; Study Committee Established. There is established a study committee to be known as the state electrical energy needs planning committee:

I. The voting members of the committee shall be:

(a) Four members of the house of representatives, appointed by the speaker of the house, who shall not all be of the same political party.

(b) Four members of the senate, appointed by the president of the senate, who shall not all be of the same political party.

II. The ex-officio members of the committee shall be:

(a) The chairman of the public utilities commission or his designee.

(b) The consumer advocate or his designee.

(c) The director of the governor's energy office or his designee.

(d) Two representatives of the electric utilities of the state, appointed by the governor and council.

(e) Two representatives of owners and operators of alternative electric energy producers of the state, appointed by the governor and council.

(f) Two members of organizations representing environmental and conservation interests of the state, appointed by the governor and council.

(g) A representative of the business and commercial sector appointed by the governor and council.

(h) Ex-officio members from within or without the state, as requested by at least 5 of the voting committee members listed under paragraph I, who shall be recognized experts in various fields of electrical energy production, planning, finance or conservation.

374:2 Terms. The legislative members shall serve for the balance of their elected terms and the members appointed by the governor shall serve until December 1, 1988. The committee shall elect a chairperson, vice chairperson, and clerk from among its members.

374:3 Duties; Report. The committee shall:

I. Study the possible electrical energy needs of the state for the next 30 years, and various alternatives for meeting those needs. The committee may hold public hearings, take written or oral presentations from interested persons, and review books, reports, and other materials deemed pertinent to the purposes of the committee.

II. Report to the governor and council, the speaker of the house, and the president of the senate on the committee's recommendations to meet the state's electrical energy needs for the next 30 years. The report shall be submitted no later than December 1, 1988.

374:4 Assistance. The state electrical energy needs planning committee may require the assistance of any state department, commission, board, agency, or institution in its study and such departments, commissions, boards, agencies, and institutions shall assist the committee whenever it so requests.

374:5 Compensation. The members of the committee shall serve without compensation, except that the legislative members shall receive mileage at the legislative rate when attending to the duties of the committee.

374:6 Committee Appointments; Initial Meeting. All members of the state electrical energy needs planning committee established by section 1 of this act shall be appointed, and an initial meeting of the committee shall be held, not later than 60 days following the effective date of this act.

374:7 Effective Date. This act shall take effect upon its passage.

Enacted in accordance with Article 44, Part II, N.H. Constitution, without signature of Governor, May 26, 1987.
Effective May 26, 1987

STATE OF NEW HAMPSHIRE
STATE ELECTRICAL ENERGY NEEDS PLANNING COMMITTEE

APPENDIX B
FORECAST METHODOLOGY

The Committee determined that an electrical forecast should be designed with the following characteristics:

- The forecast should include 3 different scenarios:
  - base case growth
  - low growth scenario
  - high growth scenario

- Each scenario should explicitly state the assumptions on which it is built.

- Each scenario should include figures for two different measures of energy needs:
  - peak load
  - total annual energy consumption

- The forecast should be for the state as a whole, should include the projected loads for all in-state consumption (not just NEPOOL members), and should not include out-of-state sales.

- The forecast should use a New Hampshire State government population forecast from the NH Office of State Planning to develop the base case.

- The forecast should remove demand side assumptions from the peak load forecast so that demand side programs can be considered in the menu of options for meeting load projections.

- In the creation of alternate scenarios from the most likely case, the forecast should provide the parametric measure; that is, determine the effect of varying one assumption while holding the others constant.

The Committee work plan involved three steps:

1. Adjust the existing NEPOOL forecast for the Office of State Planning population forecast.

2. Include an estimate of short-term growth based on a short-term economic forecast.

3. Develop alternate scenarios.

Task 1. Adjust the existing NEPOOL forecast for the Office of State Planning population forecast.

The first source of data used to develop the Committee's forecast was the latest internal population forecast from the State. The New hire Office of State Planning (OSP) published a State of New Hampshire Population forecast in May of 1987. The OSP report shows State population by age, sex, county and town in five year increments for the years 1980 to 2010. According to the Office of State Planning, the forecast was developed using a model called DEMOS which:

> "is designed as a disaggregated projection system which attempts to model growth patterns of, and interrelationships among, distinct components of New Hampshire's population and economy. Demographic variables include such items as population, births, deaths, migration, households, labor force, and so on, while economic projections include employment, earnings and personal income."
>
> -NH POPULATION PROJECTIONS, MAY 1987

The second source used for the forecast was the key indicators of the 4/1/88 NEPOOL NEW HAMPSHIRE FORECAST. The Committee assumed that two relationships implied in the NEPOOL forecast would remain unchanged when the NEPOOL forecast is updated for the OSP population forecast. Specifically that income per capita and electricity sales per dollar of income would be the same in the OSP case as in the NEPOOL case. This assumption allowed the Committee to exchange the OSP population forecast directly for the NEPOOL population forecast, and to create an OSP based electricity sales forecast.

In order to develop an OSP based electrical energy load forecast for the State of New Hampshire the following methodology was used:

A. Use the NEPOOL model results to develop ratios of Income per Capita and Sales per Dollar of Income. Income is expressed in real (1987) dollars.

B. Multiply the OSP population forecast times the ratio of Income per Capita to derive OSP based Total Personal Income.

C. Multiply Total Personal Income times the ratio of Electricity Sales per Dollar of Income to derive OSP based Electrical Energy for the State of New Hampshire.

The resulting OSP based electrical energy load forecast calls for total energy sales to grow at an annual rate of 3.5 percent for the period 1987-2003. This compares to the NEPOOL forecast of 2.5 percent and the PSNH forecast of 3.3 percent (PSNH retail service area) for the same period. During the historical period 1970 to 1987 State energy growth was at 4.8 percent per year while growth from the 1973-1987 (post-embargo) period was at 3.7 percent.

Figures B-1 through B-5 display the inputs and results for the OSP based electrical energy load forecast. Where appropriate, the figures compare the OSP case to the NEPOOL case for population, income and sales.

The Committee feels strongly that this is a reasonable approach for developing the base case, given the constraints of resources and time. Even though it would have been desirable to "run" a model to get the forecast, this was not possible within the time frame given to the Committee to complete its work. Also, while the OSP forecast is based on a very comprehensive economic model, the forecast detail from the OSP forecast was not available to the Committee in enough time to create a model run. Finally, the Committee notes that it is a perfectly acceptable technique within the forecasting discipline to use the relationships implied by a more detailed model to develop alternate scenarios, particularly when time and resource constraints prevent the use of the more detailed model.

Task 2. Include an estimate of short-term growth based on a short-term economic forecast.

Another important forecast consideration for the Committee was the development of a short-term forecast of electrical energy sales growth. Recent electrical energy sales growth has been over 6 annually (see Section III A). The full Committee has also discussed that most long-term forecasts have growth rates much lower than current growth rates. Given the potential for this growth to continue in the future, the Committee wanted to concentrate on the short-term, even though the forecast requirement was for a long-term forecast.

The Committee used the most recent New England Economic Project (NEEP) forecast for estimating short-term sales growth. Specifically the Committee substituted the growth in population and personal income in the NEEP forecast for the period 1988-1990 into the model developed in Task 1. The NEEP forecast calls for real personal income to increase at an annual rate of 5.4 percent for the period 1987-1990, compared to the Task 1 growth rate of 4.0 percent for the same period. Real personal income increased at an annual rate of 7.4 percent in the period 1984-1987, so the NEEP forecast expectation is still conservative relative to recent experience. Figure B-6 compares annual electric sales growth resulting from the adjustment for the NEEP forecast with unadjusted sales. After 1990, the growth rates from the OSP based electrical energy forecast are used as the basis of population projections.

The New England Economic Project is a nonprofit corporation comprised of New England businesses firms, state governments, and educational institutions. NEEP's Forecast Committee gathers regional data and produces economic forecasts of the six New England States. NEEP retains Data Resources, Inc. to store and maintain its databanks and to assist in modeling and forecasting the New England economy. The state economic models are linked to DRI's national economic model and forecasts. Forecasts for the states are produced by representatives of NEEP member institutions from each New England state, who bring unique perspectives to the forecasts.

Task 3. Develop alternate scenarios.

The final task for the Committee was to develop alternate scenarios off the base case forecast. For this task the Committee relied on scenario analysis already performed by NEPOOL.

NEPOOL has run several separate sensitivity cases involving high and low oil prices, high and low economic growth, high and low efficiency standards and high and low industrial energy intensity. In addition NEPOOL also ran a combined high and a combined low case, which were formulated to produce an extreme high and extreme low case. Therefore the Committee felt it could use the NEPOOL work and also have available the desired parametric measure.

The Committee used the forecast growth rate difference from the NEPOOL combined high and combined low case to adjust it's own base case. For example, the NEPOOL New England reference case growth was 2.2 percent, while the combined low growth case was 1.4 percent for a difference of -0.8 percent. This difference was applied to each annual growth rate in the Committee's most likely case to develop the Committee's own low growth case. A similar method was used to develop the high growth case.

The table below details each of the alternate NEPOOL scenarios in terms of the difference in long term growth rate from the NEPOOL base case forecast.

SCENARIO NAME AND CHARACTERISTIC	DIFFERENCE IN LONG TERM GROWTH (%)
a. Rise of OPEC High Oil Prices	-0.8
b. Fall of OPEC Low Oil Prices	+0.3
c. Economic Boom High Economic Growth	+0.7
d. Economic Bust Slower Economic Growth	-0.7
e. Higher Residential and Commercial Efficiency Standards	-0.6
f. Lower Residential and Commercial Efficiency Standards	+0.4
g. Higher Industrial Electrification	+0.1
h. Lower Industrial Electrification	-0.3
Combined Low (a+d+e+g)	-0.8
Combined High (b+c+f)	+1.3

What makes the NEPOOL analysis even more advantageous to the Committee's purpose is that NEPOOL considered second order effects through the use of an integrated planning model. That is, NEPOOL's initial load forecast for lower economic growth, for instance, was introduced into a planning model which accounted for the effect of lower economic growth on the need for capacity. Reduced need for capacity reduces future energy prices. Subsequently lower energy prices would tend to increase electricity demand, which would increase the need for capacity, etc. The integrated model used by NEPOOL (PROSCREEN II) made the necessary adjustments to capacity, revised energy prices and produced final loads for each case considered.

To summarize, the base case forecast recommended by the Committee relies on the NEEP forecast for the period 1988-1990 (Task 2) and the growth rates from the OSP forecast for the years 1991-2010 (Task 1). The long term growth rates for the OSP forecast are applied to the 1990 level from the NEEP forecast to develop long term levels of population, and hence, electricity sales according to the method described in Task 1.

The high and low forecasts developed by the Committee rely on existing NEPOOL model sensitivity work, applied directly to the Committees growth rate estimates for the most likely or base case.

The results of the forecast effort has yielded a base case forecast growth rate for the State electrical energy (sales and peak load excluding demand side management) that will average 3.6 percent growth annually for the period 1988 to 2010. The low growth scenario calls for 2.8 percent annually and a high growth scenario calls for 4.9 percent annually for the same time period. The Committee notes that growth in the short-term will be much higher than the average for the base case recommended here.

SALES FORECAST

The final energy sales to ultimate customers forecast is also "benchmarked" for the most recent actual data. That is the growth rates derived from the above method are applied to a 1987 New Hampshire energy sales of 8,041 million kilowatthours in order to get the forecast values. The 1987 energy sales to ultimate customers figure is a estimate from the Electric Council of New England.

PEAK LOAD FORECAST

Peak load forecasts were developed to be matched against the menu of resource options (which includes demand-side management programs). The peak load forecasts were developed using the annual sales growth rates for each of the three cases applied to the 1987/88 weather corrected and reconstituted State peak value of 1,697 MW to develop peak load forecasts before demand-side management. Tables B-1 and B-2 detail the development of the weather corrected winter peak value.

The Subcommitte has used energy sales growth rates applied to a weather corrected peak load estimate to develop peak load forecasts net of demand-side management. The underlying assumption here is that peak load, net of demand-side programs, will grow at approximately the same rate as energy sales in the forecast period. The peak load forecasts contain no significant demand-side intervention by utilities or others to try to limit the growth in peak demand. Programs that are designed to reduce peak growth (e.g. load management, peak reduction and shift, non price induced conservation, additional government mandated efficiency programs, etc.) are not included in the peak forecasts. These types of programs are considered by the Committee under Section VI and detailed in Appendix C.

Table B-1

STATE ELECTRICAL ENERGY NEEDS PLANNING COMMITTEE

Temperature at time of PSNH Winter Peak Loads

Winter	Date of Peak	Dry Bulb Temp (F) at Concord, NH
87 / 88	1/14/88	-6
86 / 87	1/26/87	17
85 / 86	1/15/86	9
84 / 85	1/21/85	8
83 / 84	12/20/83	3
82 / 83	1/19/83	1
81 / 82	1/11/82	4
80 / 81	1/12/81	0
79 / 80	12/19/79	3
78 / 79	1/18/79	7
77 / 78	12/12/77	2
76 / 77	12/13/76	-1
75 / 76	1/22/76	-6
74 / 75	1/20/75	4

Average (14 years) =	3.2
Average (13 years) = (excl 87/88)	3.9

Table B-2

STATE ELECTRICAL ENERGY NEEDS PLANNING COMMITTEE

Summary of 1987/1988 PSNH Winter Peak Load
Estimate of Weather Corrected State Peak

PSNH Recorded Load	1,416.73
Estimated impact of PSNH Peak Management Programs (1)	20.5
Estimated PSNH Non DSM Load	1,437
PSNH Normalization for Expected Weather (2)	1,360
State of NH Normalized Peak Load (3)	1,697

(1) Includes Rate WI, Clockwatch 6, Large Customer Voluntary Load Reduction Program, SPP Effort to Increase Output, PSNH In-House Load Reduction Efforts and Interruptible Rate with 1 Resale Customer.

(2) Based on Variation of Actual Concord, NH Weather Data from Peak Expected Temperature (9 degrees F) and Estimated Weather Sensitivie Load (8.5 MW/F).

(3) Divided by Ratio of 1987 PSNH Sales w/o UNITIL to Total NH Sales (6444/8041) = 0.80139

Figure B-1

STATE ELECTRICAL ENERGY NEEDS PLANNING COMMITTEE
LOAD FORECAST SUBCOMMITTEE
New Hampshire Population

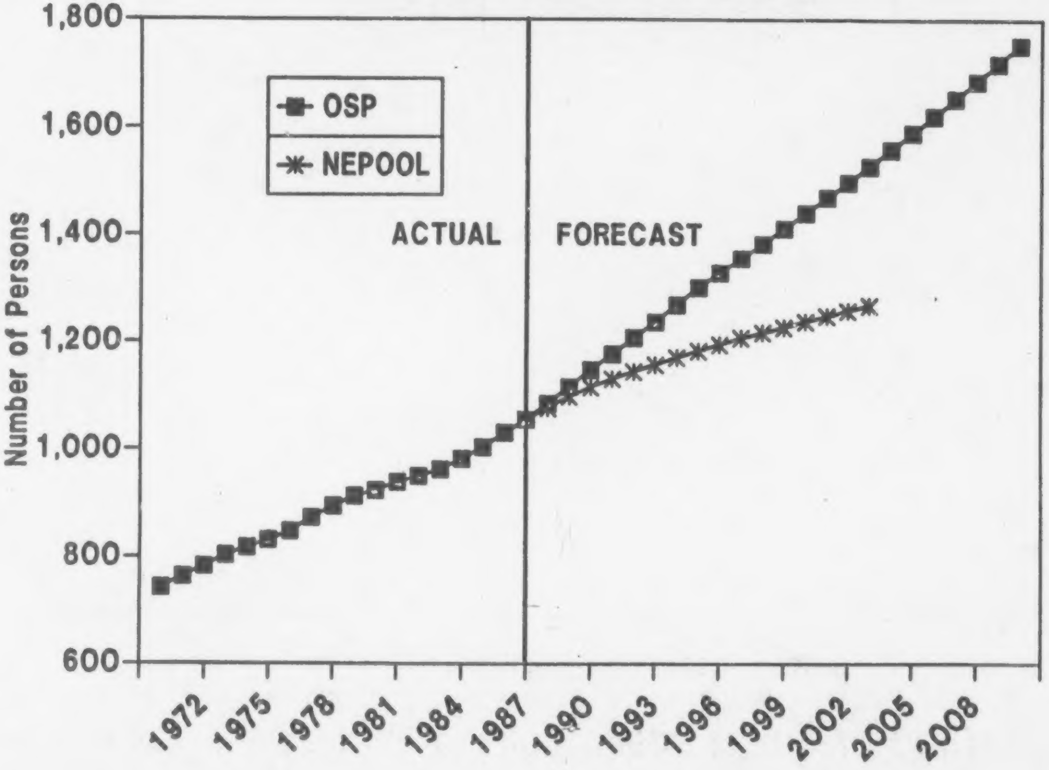


Figure B-2

STATE ELECTRICAL ENERGY NEEDS PLANNING COMMITTEE
LOAD FORECAST SUBCOMMITTEE
New Hampshire Per Capita Income

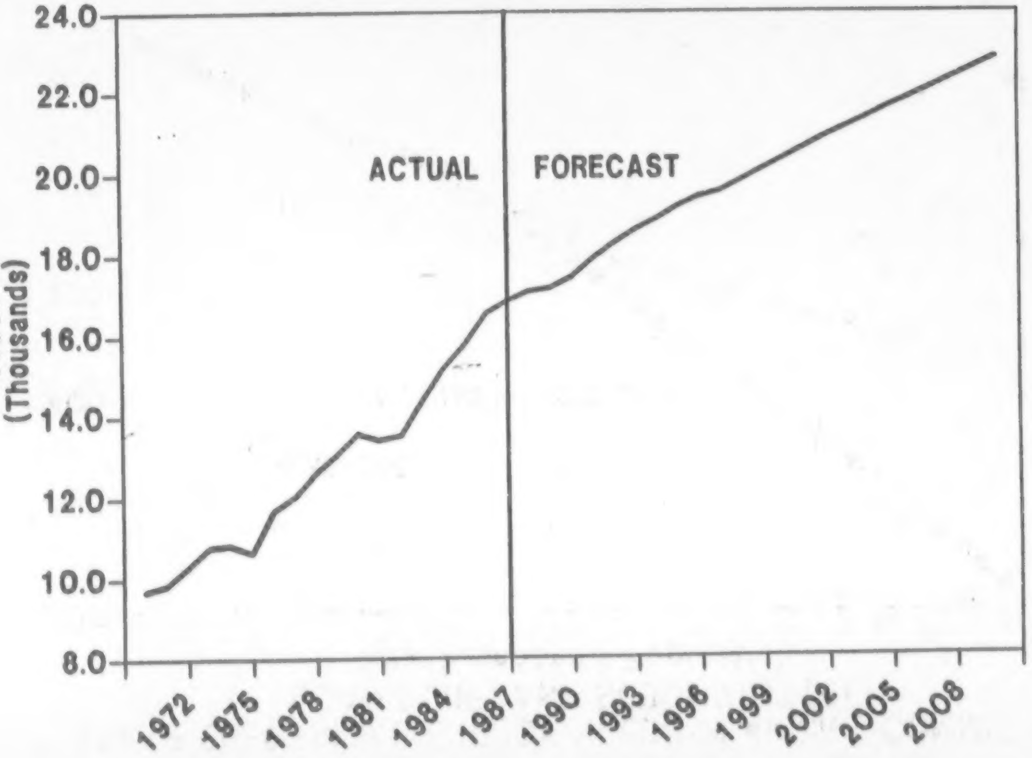


Figure B-3

STATE ELECTRICAL ENERGY NEEDS PLANNING COMMITTEE
LOAD FORECAST SUBCOMMITTEE
New Hampshire Personal Income

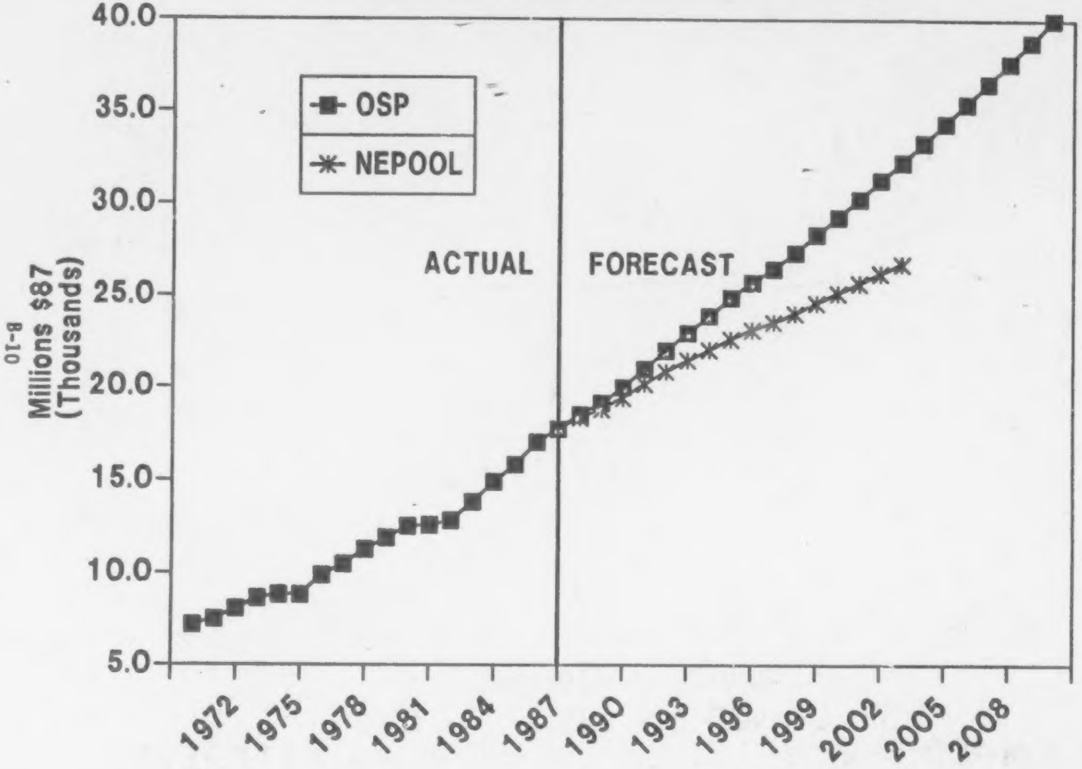
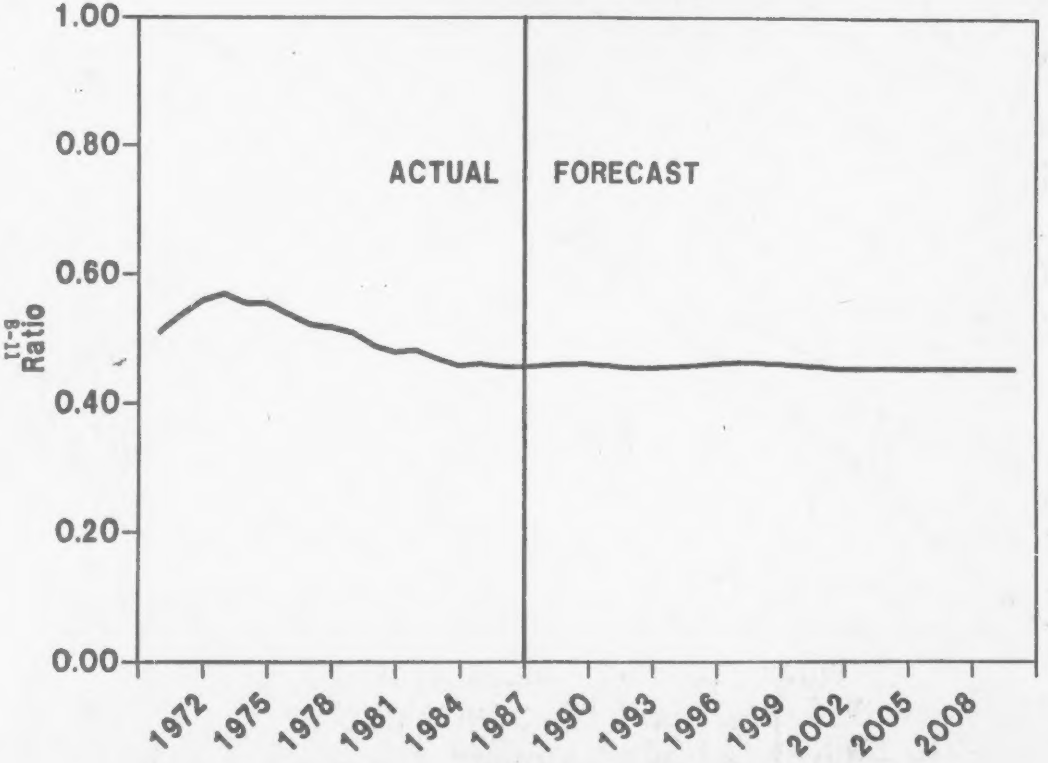


Figure B-4

STATE ELECTRICAL ENERGY NEEDS PLANNING COMMITTEE
LOAD FORECAST SUBCOMMITTEE
GWH Sales/Income



STATE ELECTRICAL ENERGY NEEDS PLANNING COMMITTEE
LOAD FORECAST SUBCOMMITTEE
New Hampshire Total Electric Sales

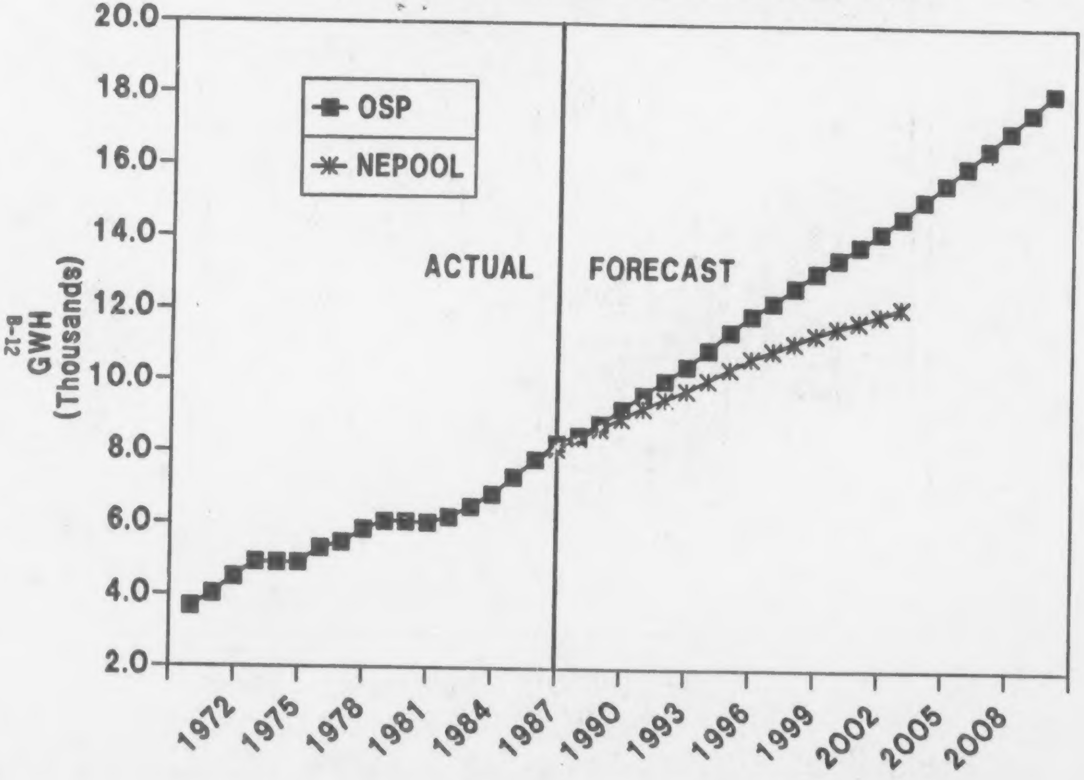
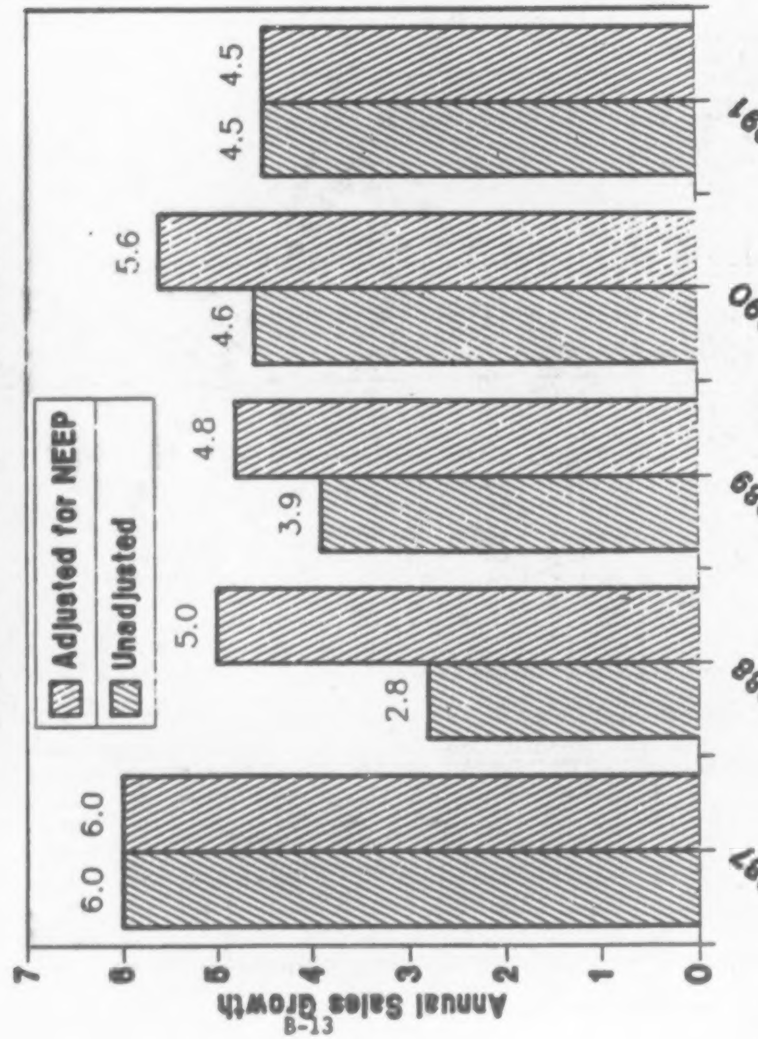


Figure B-5

Figure B-6

STATE ELECTRICAL ENERGY NEEDS PLANNING COMMITTEE
LOAD FORECAST SUBCOMMITTEE
Short Term Sales Adjustment



STATE OF NEW HAMPSHIRE
STATE ELECTRICAL ENERGY NEEDS PLANNING COMMITTEE

APPENDIX C

SUPPLY/RESOURCE PLAN

The State Electrical Energy Needs planning committee was charged with developing a menu of supply options to meet the projected energy needs discussed in Appendix B. The Committee examined data and information about the existing utility resources for the State of New Hampshire, and prepared a twenty-year profile of existing resources and compared it to the forecast. Complete resource projection information from public utilities was only available through October of 2006.. Therefore the Committee chose instead to develop a plan for the period 1988 to 2006.

The top portion of Table C-1 summarizes the existing and committed resources as identified by the New Hampshire utilities in documents filed with the Commission, grouped by type of resource. The information in the top portion of Table C-1 was used to develop the New Hampshire Supply Plans graph in Section VI (Figure VI-1). The detail behind Table C-1 is contained on Table C-2, with the exception of the Planned Demand Side Management estimate. The planned DSM estimate was developed by the Committe after polling utility representatives.

The bottom portion of Table C-1 summarizes the Hypothetical Future Resource Plan for the State of New Hampshire devised by the Committee to meet the gap shown on Figure VI-1. The information in the bottom portion of TAble C-1 was used to develop the resource plan graph in Section VI (Figure VI-2). The plan incorporates 200 MW of contributions from peak reduction demand side programs by the year 2005, as well as 200 MW of contributions from conservation programs. Life extensions for the older Schiller and Merrimack units are incorporated. New supply resource construction begins with 100 MW per year of Combined Cycle, Combustion Turbine and Qualifying Facility base load units. By the year 2000, around 1,000 MW of new capacity would have to be built.

State Electrical Energy Needs Planning Committee
RESOURCE

New Hampshire Electric Supply Plans
Nov. 1988 through Oct. 2006

	Est. Load	Est. Requrmnts	Nuc/Hyd	Coal/Dual	Oil/Gas	Util Purchase	NonUtil Purchase	Planned Generatn	Planned DSM	Resources	Excess/ Deficienc
1988	1,782	2,228	205	547	565	352	219	3	25	1,915	(313)
1989	1,868	2,335	205	547	565	340	219	54	35	1,964	(371)
1990	1,972	2,465	205	547	565	340	219	713	45	2,633	168
1991	2,061	2,576	205	547	565	302	219	713	55	2,604	28
1992	2,144	2,680	205	547	565	288	219	713	65	2,601	(79)
1993	2,231	2,789	205	547	565	271	219	692	67	2,565	(224)
1994	2,332	2,915	205	547	565	224	219	692	70	2,521	(394)
1995	2,440	3,050	205	547	565	229	219	692	72	2,528	(522)
1996	2,538	3,173	205	547	565	208	219	692	75	2,510	(663)
1997	2,616	3,270	192	547	541	215	219	692	78	2,483	(787)
1998	2,705	3,381	192	547	471	199	219	692	80	2,401	(981)
1999	2,794	3,493	192	423	450	206	219	692	83	2,265	(1,227)
2000	2,875	3,594	192	423	450	213	219	663	86	2,247	(1,347)
2001	2,952	3,690	192	423	450	221	219	538	89	2,133	(1,557)
2002	3,032	3,790	192	375	450	229	219	538	93	2,096	(1,694)
2003	3,125	3,906	163	375	450	237	219	538	96	2,078	(1,828)
2004	3,226	4,033	163	375	450	246	219	538	99	2,090	(1,942)
2005	3,326	4,158	163	322	450	265	219	538	103	2,050	(2,108)

New Hampshire Hypothetical Resource Plan

	Total Deficiency With Planned	Without Planned	CLM	Peak Shaving	Utility CT	Utility CC	Utility Life Ext	QF's	Total	Gap
1988	(313)	(315)	10	10					20	(293)
1989	(371)	(425)	10	10					20	(351)
1990	168	(544)	22	22					44	212
1991	28	(685)	34	34					68	96
1992	(79)	(792)	46	46					92	13
1993	(224)	(916)	58	58	100				216	(8)
1994	(394)	(1,086)	70	70	100	100		100	440	46
1995	(522)	(1,214)	82	82	200	100		100	564	42
1996	(663)	(1,354)	94	94	200	200		100	688	25
1997	(787)	(1,478)	106	106	200	200		200	812	25
1998	(981)	(1,672)	118	118	300	300		200	1,036	55
1999	(1,227)	(1,919)	130	130	300	300	124	300	1,284	57
2000	(1,347)	(2,010)	142	142	400	300	124	300	1,408	61
2001	(1,557)	(2,095)	154	154	400	400	124	400	1,632	75
2002	(1,694)	(2,233)	166	166	400	400	173	400	1,705	10
2003	(1,828)	(2,366)	178	178	500	400	173	400	1,829	0
2004	(1,942)	(2,481)	190	190	500	500	173	400	1,953	10
2005	(2,108)	(2,646)	200	200	500	500	225	500	2,126	18

DETAIL OF NEW HAMPSHIRE LONG RANGE ELECTRICITY SUPPLY PLANS   REVISED DRAFT DOCUMENT

	88/89	89/90	90/91	91/92	92/93	93/94	94/95	95/96	96/97
ON SYSTEM CAPACITY (1.) (EXISTING UNITS)									
HYDRO									
Garvins	10.75	10.75	10.75	10.75	10.75	10.75	10.75	10.75	75
Gorham	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	.00
Hooksett	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95
Jackman	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60
Smith	16.55	16.55	16.55	16.55	16.55	16.55	16.55	16.55	16.55
Eastman Falls	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
Canaan	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
Ayers Island	9.08	9.08	9.08	9.08	9.08	9.08	9.08	9.08	9.08
Amoskeag	17.05	17.05	17.05	17.05	17.05	17.05	17.05	17.05	17.05
TOTAL ON SYSTEM HYDRO	68.58	68.58	68.58	68.58	68.58	68.58	68.58	68.58	68.58
COMBUSTION TURBINES									
Lost Nation Gt	21.20	21.20	21.20	21.20	21.20	21.20	21.20	21.20	21.20
White Lake Jet	22.30	22.30	22.30	22.30	22.30	22.30	22.30	22.30	22.30
Merrimack Jet 1	22.70	22.70	22.70	22.70	22.70	22.70	22.70	22.70	22.70
Merrimack Jet 2	23.80	23.80	23.80	23.80	23.80	23.80	23.80	23.80	23.80
Schiller Jet	24.30	24.30	24.30	24.30	24.30	24.30	24.30	24.30	24.30
TOTAL ON SYSTEM CT	114.30	114.30	114.30	114.30	114.30	114.30	114.30	114.30	114.30
DIESELS									
Swans Falls (2)	3.11	3.11							
Wolfeboro Diesels	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75
TOTAL ON SYSTEM DIESELS	5.86	5.86	2.75	2.75	2.75	2.75	2.75	2.75	2.75
STEAM (OIL)									
Newington 1	428.03	428.03	428.03	428.03	428.03	428.03	428.03	428.03	428.03
TOTAL ON SYSTEM OIL	428.03	428.03	428.03	428.03	428.03	428.03	428.03	428.03	428.03

DETAIL OF NEW HAMPSHIRE LONG RANGE ELECTRICITY SUPPLY PLANS   REVISED DRAFT DOCUMENT

	88/89	89/90	90/91	91/92	92/93	93/94	94/95	95/96	96/97
STEAM (COAL)									
Merrimack ST 1	123.95	123.95	123.95	123.95	123.95	123.95	123.95	123.95	123.95
Merrimack ST 2	244.16	244.16	244.16	244.16	244.16	244.16	244.16	244.16	244.16
TOTAL ON SYSTEM COAL	368.11	368.11	368.11	368.11	368.11	368.11	368.11	368.11	368.11
STEAM (DUEL FUEL)									
Schiller 3 (Oil/Gas) (%)	28.20	28.20	28.20	28.20	28.20	28.20	28.20	28.20	28.20
Schiller 4 (Coal/Oil)	48.70	48.70	48.70	48.70	48.70	48.70	48.70	48.70	48.70
Schiller 5 (Coal/Oil)	52.55	52.55	52.55	52.55	52.55	52.55	52.55	52.55	52.55
Schiller 6 (Coal/Oil)	49.88	49.88	49.88	49.88	49.88	49.88	49.88	49.88	49.88
TOTAL ON SYSTEM DUEL	179.33	179.33	179.33	179.33	179.33	179.33	179.33	179.33	179.33
TOTAL ON SYSTEM CAPACITY	1164.21	1164.21	1161.10	1161.10	1161.10	1161.10	1161.10	1161.10	1161.10
SUBTOTAL	1164.21	1164.21	1161.10	1161.10	1161.10	1161.10	1161.10	1161.10	1161.10
OFF SYSTEM CAPACITY (EXISTING OWNERSHIP)									
STEAM (OIL)									
W.F. Wyman 4	19.46	19.46	19.46	19.46	19.46	19.46	19.46	19.46	19.46
TOTAL OFF SYSTEM OIL	19.46	19.46	19.46	19.46	19.46	19.46	19.46	19.46	19.46
NUCLEAR									
Millstone 3	32.73	32.73	32.73	32.73	32.73	32.73	32.73	32.73	32.73
Maine Yankee	43.19	43.19	43.19	43.19	43.19	43.19	43.19	43.19	43.19
Vermont Yankee	18.67	18.67	18.67	18.67	18.67	18.67	18.67	18.67	18.67
Mass Yankee	12.28	12.28	12.28	12.28	12.28	12.28	12.28	12.28	12.28
Connecticut Yankee	29.10	29.10	29.10	29.10	29.10	29.10	29.10	29.10	29.10
TOTAL OFF SYSTEM NUCLEAR	135.97	135.97	135.97	135.97	135.97	135.97	135.97	135.97	135.97

DETAIL OF NEW HAMPSHIRE LONG RANGE ELECTRICITY SUPPLY PLANS   REVISED DRAFT DOCUMENT

		88/89	89/90	90/91	91/92	92/93	93/94	94/95	95/96	96/97
1	TOTAL OFF SYSTEM CAPACITY	155.43	155.43	155.43	155.43	155.43	155.43	155.43	155.43	155.43
2										
3	SUBTOTAL	1319.64	1319,64	1316.53	1316.53	1316.53	1316.53	1316.53	1316.53	1316.53
4										
5	PURCHASE CAPACITY									
6	(EXISTING CONTRACTS)									
7										
8	COMBUSTION TURBINES									
9										
10	New York 1-P	40.00								
11	New York 2-P		15.00	15.00	15.00	15.00	15.00			
12	South Meadow 11-14	20.00	20.00	20.00	20.00	20.00				
13										
14	TOTAL PURCHASE CT	60.00	35.00	35.00	35.00	35.00	15.00	0.00	0.00	0.00
15										
16	STEAM (OIL)									
17										
18	W.F. Wyman 4	10.00	10.00	10.00						
19	Middletown 2	1.70	1.70	1.70	1.70					
20	Middletown 3	3.10	3.10	3.10	3.10					
21	Middletown 4	5.40	5.40	5.40	5.40					
22	Montville 5	1.70	1.70	1.70	1.70					
23	Montville 6	8.30	8.30	8.30	8.30					
24	New Haven Harbor	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	
25	New York 2-I		35.00	35.00	35.00	35.00	35.00			
26										
27	TOTAL PURCHASE OIL	55.20	90.20	90.20	80.20	60.00	60.00	25.00	25.00	0.00
28										
29	STEAM (DUEL FUEL)									
30										
31	Stonybrook CH (Oil/Gas)	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00
32										
33	TOTAL PURCHASE DUEL	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00
34										
35	NUCLEAR									
36										
37	Vermont Yankee	15.00	15.00	25.00						
38										
39	TOTAL PURCHASE NUCLEAR	15.00	15.00	25.00	0.00	0.00	0.00	0.00	0.00	0.00

DETAIL OF NEW HAMPSHIRE LONG RANGE ELECTRICITY SUPPLY PLANS   REVISED DRAFT DOCUMENT

	88/89	89/90	90/91	91/92	92/93	93/94	94/95	95/96	96/97
CANADIAN									
Highgate	10.00	10.00							
HQ II (4)			124.50	124.50	124.50	124.50	124.50	124.50	124.50
New Brunswick	6.00	6.00	6.00						
TOTAL PURCHASE CANADIAN	16.00	16.00	130.50	124.50	124.50	124.50	124.50	124.50	124.50
SYSTEM MIX									
Central Vermont	25.00								
TOTAL PURCHASE SYSTEM MIX	25.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NON UTILITY (5)									
Hydro	56.87	56.87	56.87	56.87	56.87	56.87	56.87	56.87	56.87
Steam	160.70	160.70	160.70	160.70	160.70	160.70	160.70	160.70	160.70
Other	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
TOTAL PURCHASE NON-UTILITY	218.57	218.57	218.57	218.57	218.57	218.57	218.57	218.57	218.57
TOTAL PURCHASE CAPACITY	412.77	397.77	522.27	481.27	461.07	441.07	391.07	391.07	366.07
SUBTOTAL	1732.41	1717.41	1838.80	1797.80	1777.60	1757.60	1707.60	1707.60	1682.60
REQUIREMENTS CONTRACTS (OUT OF STATE)									
FULL REQUIREMENTS									
Granite State/NEP (6)	115.83	117.87	117.39	118.32	123.75	125.58	127.80	131.19	[illegible]
Connecticut Valley/CV (7)	32.70	33.40	34.00	34.80	35.50	36.20	36.90	37.70	[illegible]
Littleton/NEP (8)	3.50	3.63	3.76	3.89	4.03	4.18	4.33	4.40	[illegible]
Woodsville/CV (9)	1.20	1.24	1.29	1.33	1.38	1.43	1.48	1.54	[illegible]
TOTAL FULL REQ.	153.23	156.14	156.45	158.35	164.66	167.39	170.51	174.91	179.24

DETAIL OF NEW HAMPSHIRE LONG RANGE ELECTRICITY SUPPLY PLANS   REVISED DRAFT DOCUMENT

	88/89	89/90	90/91	91/92	92/93	93/94	94/95	95/96	96/97
PARTIAL REQUIREMENTS (10)									
NH Corp/CV	2.70	2.80	2.90	3.00	3.11	3.22	3.34	3.46	3.50
NH Corp/NEP	1.30	1.35	1.40	1.45	1.50	1.55	1.61	1.67	1.75
NH Corp/CHP	0.50	0.52	0.54	0.56	0.58	0.60	0.62	0.64	0.66
TOTAL PARTIAL REQ.	4.50	4.66	4.83	5.00	5.18	5.37	5.56	5.76	5.97
TOTAL OF REQ. CONTRACTS	157.73	160.80	161.26	163.35	169.85	172.76	176.07	180.67	165.22
SUBTOTAL	1890.14	1878.21	2000.06	1961.15	1947.45	1930.36	1883.67	1888.27	1867.82
PLANNED ADDITIONS									
UTILITY									
Seabrook (11)			484.04	484.04	484.04	463.04	463.04	463.04	463.04
TOTAL UTILITY ADDITIONS	0.00	0.00	484.04	484.04	484.04	463.04	463.04	463.04	463.04
NON UTILITY (12)									
Steam	1.17	50.79	100.99	100.99	100.99	100.99	100.99	100.99	100.99
Hydro	1.51	3.13	3.13	3.13	3.13	3.13	3.13	3.13	3.13
TOTAL NON UTILITY ADDITIONS	2.68	53.92	104.12	104.12	104.12	104.12	104.12	104.12	104.12
TOTAL PLANNED ADDITIONS	2.68	53.92	588.16	588.16	588.16	567.16	567.16	567.16	567.16
SUBTOTAL	1892.82	1932.13	2588.22	2549.31	2535.61	2497.52	2450.83	2455.43	2434.90

DETAIL OF NEW HAMPSHIRE LONG RANGE ELECTRICITY SUPPLY PLANS   REVISED DRAFT DOCUMENT

	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06
ON SYSTEM CAPACITY (EXISTING UNITS)									
HYDRO									
Garvins	10.75	10.75	10.75	10.75	10.75	10.75	10.75	10.75	10.75
Gorham	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Hooksett	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95
Jackman	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60
Smith	16.55	16.55	16.55	16.55	16.55	16.55	16.55	16.55	16.5
Eastman Falls	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.
Canaan	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.
Ayers Island	9.08	9.08	9.08	9.08	9.08	9.08	9.08	9.08	9.0
Amoskeag	17.05	17.05	17.05	17.05	17.05	17.05	17.05	17.05	17.05
TOTAL ON SYSTEM HYDRO	68.58	68.58	68.58	68.58	68.58	68.58	68.58	68.58	68.58
COMBUSTION TURBINES									
Lost Nation Gt	21.20	21.20	(13)						
White Lake Jet	22.30	(14)							
Merrimack Jet 1	22.70	(15)							
Merrimack Jet 2	(16)								
Schiller Jet	24.30	(17)							
TOTAL ON SYSTEM CT	90.50	21.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DIESELS									
Swans Falls									
Wolfeboro Diesels	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75
TOTAL ON SYSTEM DIESELS	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75
STEAM (OIL)									
Newington 1	428.03	428.03	428.03	428.03	428.03	428.03	428.03	428.03	428.03
TOTAL ON SYSTEM OIL	428.03	428.03	428.03	428.03	428.03	428.03	428.03	428.03	428.03

DETAIL OF NEW HAMPSHIRE LONG RANGE ELECTRICITY SUPPLY PLANS   REVISED DRAFT DOCUMENT

	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06
STEAM (COAL)									
Merrimack ST 1	123.95	123.95							
Merrimack ST 2	244.16	244.16	244.16	244.16	244.16	244.16	244.16	244.16	244.16
TOTAL ON SYSTEM COAL	368.11	368.11	244.16	244.16	244.16	244.16	244.16	244.16	244.16
STEAM (DUEL FUEL)									
Schiller 3 (Oil/Gas)	28.20	28.20	28.20	28.20	28.20	28.20	28.20	28.20	28.20
Schiller 4 (Coal/Oil)	48.70	48.70	48.70	48.70	48.70				
Schiller 5 (Coal/Oil)	52.55	52.55	52.55	52.55	52.55	52.55	52.55	52.55	
Schiller 6 (Coal/Oil)	49.88	49.88	49.88	49.88	49.88	49.88	49.88	49.88	49.88
TOTAL ON SYSTEM DUEL	179.33	179.33	179.33	179.33	179.33	130.63	130.63	130.63	78.08
TOTAL ON SYSTEM CAPACITY	1137.30	1068.00	922.85	922.85	922.85	874.15	874.15	874.15	821.60
SUBTOTAL	1137.30	1068.00	922.85	922.85	922.85	874.15	874.15	874.15	821.60
OFF SYSTEM CAPACITY (EXISTING OWNERSHIP)									
STEAM (OIL)									
W.F. Wyman 4	19.46	19.46	19.46	19.46	19.46	19.46	19.46	19.46	19.46
TOTAL OFF SYSTEM OIL	19.46	19.46	19.46	19.46	19.46	19.46	19.46	19.46	19.46
NUCLEAR									
Millstone 3	32.73	32.73	32.73	32.73	32.73	32.73	32.73	32.73	32.73
Maine Yankee	43.19	43.19	43.19	43.19	43.19	43.19	43.19	43.19	43.19
Vermont Yankee	18.67	18.67	18.67	18.67	18.67	18.67	18.67	18.67	18.67
Mass Yankee	(18)								
Connecticut Yankee	29.10	29.10	29.10	29.10	29.10	29.10	(19)		
TOTAL OFF SYSTEM NUCLEAR	123.69	123.69	123.69	123.69	123.69	123.69	94.59	94.59	94.[illegible]

DETAIL OF NEW HAMPSHIRE LONG RANGE ELECTRICITY SUPPLY PLANS REVISED DRAFT DOCUMENT

		97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06
1	TOTAL OFF SYSTEM CAPACITY	143.15	143.15	143.15	143.15	143.15	143.15	114.05	114.05	114.05
2										
3	SUBTOTAL	1280.45	1211.15	1066.00	1066.00	1066.00	1017.30	988.20	903.20	935.65
4										
5	PURCHASE CAPACITY									
6	(EXISTING CONTRACTS)									
7										
8	COMBUSTION TURBINES									
9										
10	New York 1-P									
11	New York 2-P									
12	South Meadow 11-14									
13										
14	TOTAL PURCHASE CT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15										
16	STEAM (OIL)									
17										
18	W.F. Wyman 4									
19	Middletown 2									
20	Middletown 3									
21	Middletown 4									
22	Montville 5									
23	Montville 6									
24	New Haven Harbor									
25	New York 2-I									
26										
27	TOTAL PURCHASE OIL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28										
29	STEAM (DUEL FUEL)									
30										
31	Stonybrook CH (Oil/Gas)	23.00								
32										
33	TOTAL PURCHASE DUEL	23.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
34										
35	NUCLEAR									
36										
37	Vermont Yankee									
38										
39	TOTAL PURCHASE NUCLEAR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

DETAIL OF NEW HAMPSHIRE LONG RANGE ELECTRICITY SUPPLY PLANS   REVISED DRAFT DOCUMENT

	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06
CANADIAN									
Highgate									
HQ II	124.50	124.50	124.50	124.50	(20)				
New Brunswick									
TOTAL PURCHASE CANADIAN	124.50	124.50	124.50	124.50	0.00	0.00	0.00	0.00	0.00
SYSTEM MIX									
Central Vermont									
TOTAL PURCHASE SYSTEM MIX	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NON UTILITY									
Hydro	56.87	56.87	56.87	56.87	56.87	56.87	56.87	56.87	56.87
Steam	160.70	160.70	160.70	160.70	160.70	160.70	160.70	160.70	160.70
Other	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
TOTAL PURCHASE NON-UTILITY	218.57	218.57	218.57	218.57	218.57	218.57	218.57	218.57	218.57
TOTAL PURCHASE CAPACITY	366.07	343.07	343.07	343.07	218.57	218.57	218.57	218.57	218.57
SUBTOTAL	1646.52	1554.22	1409.07	1409.07	1284.57	1235.87	1206.77	1206.77	1154.22
REQUIREMENTS CONTRACTS (OUT OF STATE)									
FULL REQUIREMENTS									
Granite State/NEP	138.77	143.77	148.94	154.31	159.86	165.62	171.58	177.75	184.15
Connecticut Valley/CV	40.46	41.92	43.43	44.99	46.61	48.29	50.03	51.83	53.70
Littleton/NEP	4.81	4.99	5.16	5.35	5.54	5.74	5.95	6.16	6.39
Woodsville/CV	1.65	1.71	1.77	1.83	1.90	1.97	2.04	2.11	2.19
TOTAL FULL REQ.	185.70	192.30	199.31	206.48	213.92	221.62	229.60	237.85	246.42

DETAIL OF NEW HAMPSHIRE LONG RANGE ELECTRICITY SUPPLY PLANS REVISED DRAFT DOCUMENT

	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06
PARTIAL REQUIREMENTS									
NH Coop/CV	3.71	3.85	3.98	4.13	4.28	4.43	4.59	4.75	4.93
NH Coop/NEP	1.79	1.85	1.92	1.99	2.06	2.13	2.21	2.29	2.37
NH Coop/GHP	0.69	0.71	0.74	0.76	0.79	0.82	0.85	0.88	0.91
TOTAL PARTIAL REQ.	6.19	6.41	6.64	6.88	7.13	7.38	7.65	7.92	8.21
TOTAL OF REQ. CONTRACTS	191.88	198.79	205.95	213.36	221.04	229.00	237.24	245.79	254.63
SUBTOTAL	1838.40	1753.01	1615.02	1622.43	1505.61	1464.87	1444.01	1452.56	1408.65
PLANNED ADDITIONS									
UTILITY									
Seabrook	463.04	463.04	463.04	434.04	434.04	434.04	434.04	434.04	434.04
TOTAL UTILITY ADDITIONS	463.04	463.04	463.04	434.04	434.04	434.04	434.04	434.04	434.04
NON UTILITY									
Steam	100.99	100.99	100.99	100.99	100.99	100.99	100.99	100.99	100.99
Hydro	3.13	3.13	3.13	3.13	3.13	3.13	3.13	3.13	3.13
TOTAL NON UTILITY ADDITIONS	104.12	104.12	104.12	104.12	104.12	104.12	104.12	104.12	104.12
TOTAL PLANNED ADDITIONS	567.16	567.16	567.16	538.16	538.16	538.16	538.16	538.16	538.16
SUBTOTAL	2405.56	2320.17	2182.18	2160.59	2043.77	2003.03	1982.17	1990.72	1917.01

NOTES TO TABLE C-2 12

(1) All on system capacity is reported at April 1, 1988 NEPOOL CELT Report winter ratings.

(2) Swans Falls assumed to retire concurrent with Seabrook in-service.

(3) Schiller 3 is currently under going major plant life extension.

(4) Assumes an interconnection capability credit of 2000 MW and a transfer capability of 1300 MW as found by recent MEN reliability study.
PSNH = 113.4 MW, UNITIL = 11.1 MW.

(5) Units operating as of August 31, 1988:

PSNH:	54.87 MW (HYDRO) and 123.1 MW (STEAM)
UNITIL:	0 MW (HYDRO) 33.6 and MW (STEAM)
GSEC, CV, NHCOOP:	2 MW (HYDRO) and 4.0 MW (STEAM)

(6) Assumes Granite State is 3% of NEP load forecast filed in April, 1988 Bulk Power Facilities Report. Assumes 3.6% escalation. (base case NH Electricity Needs load forecast) for years not included in NEP load forecast.

(7) Same reporting convention noted in footnote (6) - for Connecticut Valley/Central Vermont.

(8) 88/89 Base year is derived from Littleton's NHPUC Annual Report assuming peak month's KWH purchase power from NEP and a 60% load factor. Assumes 3.6% escalation (base case) for years 89/90 - 05/06.

(9) Same reporting convention noted in footnote (8) - for Woodsville/Central Vermont.

(10) Does not include NHCOOP 145.8 (87/88) requirements purchase from PSNH. Only includes out of state supplied requirements, assuming a 3.6% escalation over 87/88 actuals. (87/88=88/89).

(11) Assumes MMWEC Seabrook buy back of 50 MW for years 90/91 - 92/93 and 29 MW for years 93/94 - 99/00. PSNH entitlement = 409.00 MW, NHCOOP = 25 MW.

(12) Non utility planned additions defined as those under construction as of August 31, 1988 and selling to PSNH and those under contract and selling to UNITIL. Distributed as follows:

	88/89	89/90	90/91
PSNH			
Steam	1.51	15.27	29.37
Hydro	1.17	3.13	3.13
UNITIL			
Steam	0	35.50	71.60
Hydro	0	0	0
TOTAL	2.68	53.92	104.12

(13) Lost Nation Jet retired 11/99.

(14) White Lake Jet retired 11/98.

(15) Merrimack Jet 1 retired 11/98.

(16) Merrimack Jet 2 retired 11/97.

(17) Schiller Jet retired 11/98.

(18) Mass Yankee retired 11/97.

(19) Conn Yankee retired 11/03.

(20) HQII Phase II contract expires 11/01.

Sources:

PSNH generation plans filed in "PSNH avoided cost estimate, June, 1988".

UNITIL Power Corp. base case capacity plan filed in August 1988 Fuel Adjustment Charge Report.

NHCOOP cover letter to NEPOOL Management Committee requesting membership in NEPOOL - dated August 12, 1988.

NHPUC 1988 Bulk Power Facilities Siting Reports.

NEPOOL April 1, 1988 CELT Report.

PSNH Small Power Producer Activity Summary Report - July 1988.

NHPUC Municipal Utility Annual Report - year ending 1987.

Senator McClure. Mr. Edwards, the Chairman touched on a matter that I think needs a little more exploration, and that is the difference between the cost projections of operation of a plant as compared to the costs of power coming from the plant. That occasions because of the difference in the mix between capital costs and operating costs, does it not?

Mr. Edwards. That is correct.

Senator McClure. Now typically, a nuclear power plant and other plants may be roughly equal in terms of kilowatt hour costs, depending upon the fuel costs that are assumed for the alternatives.

Mr. Edwards. Yes, sir.

Senator McClure. But a nuclear power plant, regardless of its comparison to others, is very, very capital intensive, but the fuel costs are a very small part of the total electric value and the output of the plant; is that not correct?

Mr. Edwards. Yes, sir.

Senator McClure. So that once the capital cost is made, the operating costs are much lower than the alternatives because in the others, capital costs are low and the fuel costs are high or a high percentage of the total cost of operation?

Mr. Edwards. That approach is correct.

Senator McClure. So if you are going to compare nuclear to fossil fuel and you have not built either, that is one comparison; but if you are talking about the costs of an operating plant already completed, that is a dramatically different comparison?

Mr. Edwards. Yes, sir.

Senator McClure. I think that needs to be understood, particularly with respect to Shoreham and Seabrook.

The second question that needs to be put in focus and very well understood is that to which Mr. Bradford made reference; that is, nuclear power plant costs are high because of a retrofitting and refurbishing requirements, additional ongoing capital cost merged into cost of operation.

Typically when we started some 20 years ago looking at nuclear power plants, our estimated costs were about one-tenth of the current actual cost. There were projections made in the late 1960s and plans made to build nuclear power plants with initial investment costs of $.5 billion.

Mr. Edwards. Yes, sir.

Senator McClure. Today, it is $5 billion.

Mr. Edwards. They were made for even less than that, Senator.

Senator McClure. So that is not an unfair or exaggerated comparison.

Mr. Edwards. Somewhere between 10 and 20 percent.

Senator McClure. Now that has reflected the various changes that have been required to be incorporated in those plans, so those additional costs are already reflected in the base costs of both Shoreham and Seabrook?

Mr. Edwards. That is exactly what I tried to say a moment ago, sir.

Senator McClure. So it would be unfair, then, to take those costs and project the same phenomenon over the operating life of the plants unless, indeed, the opponents of nuclear power have other plans in mind and are capable of carrying them out?

Mr. Edwards. That is correct.

Senator McClure. Mr. Edwards, through the State regulatory process was the Commonwealth of Massachusetts involved in the siting and financing of the Seabrook plant, since almost 40 percent of the project is owned by Massachusetts-based utilities?

Mr. Edwards. Yes, sir. The Commonwealth of Massachusetts was involved in various approval processes up until 1987 when the Massachusetts DPUC, their commission, approved the financing for the Massachusetts Municipal Wholesale Group. But they had been cooperative all along until such time, and I believe it was in 1986, as they elected not to participate in the emergency planning process.

Still, even after that the commission approved the financing for what we refer to was MMWG, the Massachusetts Municipal Wholesale Group. As you pointed out, there are four owners in the State of Massachusetts owning 40 percent or more of the plant.

Senator McClure. I want to stress one thing I think I heard you say, and that is that as recently as 1987 the State of Massachusetts approved the increased ownership share of a Massachusetts-based utility.

Mr. Edwards. That did not happen in 1987. That happened, I think, back in 1979 when——

Mr. Eichorn. More recent than that.

Mr. Edwards. More recent than that, John?

Mr. Eichorn. Senator, I believe what you are referring to occurred around 1985, at which period of time my company was given permission to increase its share in participation in Seabrook, and it was approved by the Massachusetts Department of Public Utilities.

Senator McClure. Mr. Edwards, many of us have been following the Seabrook situation for some time. One of the things that keeps cropping up are allegations that the cost of power from the plant will be prohibitive and will adversely affect the New England economy.

I wonder if you could put into perspective for us what impact the Seabrook power will have on the region's generation capacity and what impact it will likely have on rates?

Mr. Edwards. I think I have pointed out in my testimony, or at least I hope I have, that we do need Seabrook along with everything else that we can buy.

That Seabrook is going to have an adverse impact on the economy is an inaccurate statement. It is going to add 1,150 megawatts of badly-needed and reliable power to our system. It is a beautifully-built plant. It is going to cost more money, as any power plant would. All of us are taking a bath on Seabrook, Senator. In that particular case I have already written off $250 million, and we are headed for more. The late owner, Public Service of New Hampshire, will have massive writedowns.

So people who talk about the adverse impact on the economy are talking about the total cost of the plant, number one. That is inaccurate. That is not going to happen. All of us who run electric utilities are mindful of the fact that our rates can have an impact on the economy and cause us to lose customers. We are not going to be an anchor on the region's economy.

The rate increases will vary from state to state. My rate increases will probably be greater than John's due to my cost of capital being higher and so on. I would think in my particular case, however, referring to that, we are talking about over the next five or six years maybe increases approaching the rate of inflation in the 4 or 5 percent range. You must understand, we have not had a rate increase in five years, and our rates have come down by 12 percent in that five-year period.

So these alarmists who talk about the impact on the economy are just not accurate.

Senator McClure. I believe I read somewhere, and I think I recall reading in your statement calling attention to a Federal Reserve Bank report warning of the consequences of perceived shortage of electrical power. Am I correct that that was in your statement?

Mr. Edwards. Yes, sir, it was in the fully prepared statement.

Senator McClure. There are consequences to shortage as well.

Mr. Edwards. Yes, sir. There are economic and social consequences as a result of the shortage of electricity.

Senator McClure. When you are talking about the degree of shortage that might occur, how short the region would be, and you have made a number of very precise estimates based upon a number of "ifs', and the estimates are as precise as any can be, I think the lowest shortage you showed in the immediate future is 800?

Mr. Edwards. 859 megawatts by 1995.

Senator McClure. 859 megawatts. Now, is that against the targeted operating reserve?

Mr. Edwards. That is correct.

Senator McClure. So that even if you are 859 megawatts short, you may not have massive disruptions of service?

Mr. Edwards. That is correct.

Senator McClure. I think that is part of the answer to what the Chairman was asking a while ago with respect to how you are going to meet it if indeed you are forecasting shortages.

It reduces the size of your operating reserve; is that correct?

Mr. Edwards. That is exactly right, Senator.

Senator McClure. But the operating reserve is established in order to assure reliability?

Mr. Edwards. Yes, sir.

Senator McClure. Now admittedly there are a lot of people who are critical of the operating reserve concept because they think the lowest cost power is more important than reliability of supply. I think I am stating that correctly for some of them.

Mr. Edwards. There are those people who believe that, yes, sir.

Senator McClure. They are, therefore, willing to take greater chances with respect to reliability in order to achieve lower rates?

Mr. Edwards. That is correct.

Senator McClure. Now part of what happens, then, is that those who are contracting now for interruptible power whose rates are lower will either have to accept the interruptions or contract for firm base power or move out of the region?

Mr. **Edwards**. Yes, sir. That is right.

Senator **McClure**. If they contract for firm base power, that will increase the apparent rate of consumption in the region?

Mr. **Edwards**. That is right.

Senator **McClure**. So if, indeed, greater interruptions cause them to shift to a different kind of contract, then the growth projections are too conservative.

Mr. **Edwards**. Say that one more time.

Senator **McClure**. If they have to shift from interruptible power to firm base——

Mr. **Eichorn**. Your theory is exactly right, Senator.

Now I would like to add one more footnote, and I think this can probably be more adequately explained, if you wish, in a written answer.

The notion that the State of Maine was providing 90 percent of the interruptible power in New England, which I believe they were indeed doing, and that the rest of New England was not doing its share is not a proper notation to make.

The way that it was being performed in the State of Maine was primarily by the paper companies which had their own internal generation. Obviously, they could disconnect from the lesser costly source of the public power provided to them by the utility and continue to operate with their own generation. This made quite a difference.

So it is not analyzing the total economics of the picture when you say that they were providing 90 percent of the interruptible power.

Senator **McClure**. I believe it was Mr. Davis who earlier today made the comment after I had read into the record a communication from Grumann Corporation that Grumann was constructing their own co-generation plant and therefore would not experience those shortages as before.

I am going to make a statement which I think is correct, and I will try to find the answer more accurately. If indeed I am in error, we will correct the record later.

I think it is correct to say that Grumann made a calculation that they could not stand the interruptions, they could not get firm base power at economic rates, and they would build the co-generation even though it costs them more because it was cheaper than relocating their plant.

Mr. **Eichorn**. Senator, I think when you look into that you will find that there is a third party who is building that plant, and that that plant is being built on the economics based upon what you have just said plus the anticipated increases in rates that are going to come from a deal that has been cut with the governor and the Long Island Lighting Company.

Those two things are the driving force which made it economical for them to put in their own plant.

Senator **McClure**. As most people are aware, the defense business is a tremendously competitive business, and there is massive competition for alternatives within the procurement of the Department of Defense. I serve on the Defense Subcommittee of the Appropriations Committee, and I know the pressure that Grumann is under on costs on contracts. If their costs go up, they are going to lose bids. If they lose bids, there is going to be widespread concern. I have already heard from Senator D'Amato about that very subject.

I suspect that these are considerations that may be missed somewhere in the calculation about what happens to the region if reliability begins to suffer. Reliability in the Northeast is beginning to suffer. In spite of the rather general statements that are no brownouts and blackouts, there are power curtailment operations that are under way and have been under way and will be under way, and that includes interruptions to industrial customers who are on interruptible contracts. That has consequences——

Mr. **EDWARDS**. Yes, sir.

Senator **MCCLURE** [continuing]. To companies and to the individual who are employed by them and to the communities in which they are located.

Gentlemen, thank you very much for your testimony. We will have some additional questions to be submitted in writing for response for the record.

The record will remain open for 10 days, and I would appreciate your prompt response. That will be true for all witnesses.

Thank you very much.

Mr. **EDWARDS**. Thank you, Senator.

Senator **MCCLURE**. The committee is adjourned.

[Whereupon, at 12:51 p.m. the hearing was adjourned.]

APPENDIXES

APPENDIX I

Responses to Additional Questions

Department of Energy
Washington, DC 20585

June 20, 1989

The Honorable J. Bennett Johnston
Chairman
Committee on Energy and Natural
  Resources
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

On April 13, 1989, Deputy Secretary W. Henson Moore appeared before your committee to discuss electricity supply and demand in the Northeastern United States.

Following that hearing, you submitted written questions, including questions on behalf of Ranking Minority Member James A. McClure for our response to supplement the record. Enclosed are the answers to those questions, which also have been sent to Senator McClure.

If you have any questions, please have your staff call Rebecca Thompson on 586-4277. She will be happy to assist.

Sincerely,

Rebecca A. Thompson
for Robert G. Rabben
Assistant General Counsel
  for Legislation

Enclosures

POST-HEARING QUESTIONS AND ANSWERS
RELATING TO THE
APRIL 13, 1989, HEARING
BEFORE THE
COMMITTEE ON ENERGY AND NATURAL RESOURCES
U.S. SENATE
WITNESS: W. HENSEN MOORE
DEPUTY SECRETARY
U.S. DEPARTMENT OF ENERGY

QUESTIONS FROM SENATOR JOHNSTON

Question 1: The State of New York asserts that the cost of electricity to ratepayers on Long Island would actually be reduced by closing Shoreham and meeting capacity needs with demand management programs and alternative sources. Has the Department of Energy done an independent analysis of the difference in the cost of electricity with and without Shoreham? If not, would you please prepare such an analysis for the Committee? Also, please give your opinion of the assumptions underlying the state's assertions that the cost to ratepayers will be less without Shoreham (as contained in the testimony of Peter Bradford and in Public Service Commission documentation).

Answer: For the hearing on April 13, we focused our analysis on how best to supply additional power to Long Island, given the fact that Shoreham is an existing, operable generation source. We found that since Shoreham's capital costs must be paid by some combination of ratepayers, shareholders, and taxpayers in any case, the appropriate comparison is between Shoreham's projected levelized operating costs and the combined levelized building and operating costs for any alternatives. As shown in the table below, the combined levelized costs for the closest alternatives are approximately twice the cost of operating Shoreham. The costs of other supply alternatives are even greater.

Answer 1, continued:

Alternative	**Levelized Cost (1988 c/kwh)**
Shoreham operating costs	2.8
Conversion to gas combined-cycle	5.1-5.3
Bulk power/imports	4.4-5.2
Natural gas combined-cycle	5.5
Coal steam	6.0
Non-utility baseload sources	5.5-6.0
Natural gas combustion turbine	6.7
Distillate oil combined-cycle	9.6
Distillate oil combustion turbine	13.1

Source: Energy Information Administration

From the perspective of basic economics, now that Shoreham exists, it would be much cheaper to operate it than to turn to any of the alternatives.

Under the proposed Rate Moderation Agreement (March 1989), even though the plant would never be run, $3.6 billion would be placed in rate base, and rate increases of about 5% per year for 10 years are anticipated. The Q & A attachment to Commissioner Bradford's testimony of April 13 implies that if the plant were put into operation and recovery of all prudently incurred costs were allowed, an amount larger than $3.6 billion would have to be put into the rate base, leading to still higher rates, at

Answer 1, continued:

least for the first ten years of the plant's operation.

Under traditional ratemaking practices, adding capital sums in the range of $3-5 billion to the rate base of a small utility such as LILCO leads, almost unavoidably, to sizable, protracted rate increases. However, it is important to note that the Commission's cost comparison pertains only to the first eleven years; it does not compare the operation of Shoreham and alternatives on a life-cycle basis, which would be more appropriate analytically. If the analysis were spread over a longer term, the option of running Shoreham would appear increasingly attractive, because its capital costs would be continuously declining, and its operating costs would be low.

If, however, the prospect of near-term rate increases greater than those specified in the Rate Moderation Agreement is a source of concern, there is an alternative. Shoreham could be put into operation and its owner could be paid the value of its output on the basis of avoided cost; this option has been employed for

Answer 1,
continued:

the Pacific Gas and Electric Company's Diablo Canyon plant. Under this approach, the plant would never be put into rate base, and ratepayers would be assured that operating Shoreham would never result in any additional cost to them, as compared to available alternatives; at the same time, Shoreham's owner would have ample incentive to run the plant efficiently, because it would earn income only when the plant was operating.

Turning now to the key assumptions underlying the state's assertions that the cost to the ratepayers will be less without Shoreham, four such assumptions, mentioned by Commissioner Bradford in his testimony, warrant examination here.

The first has already been discussed above; i.e., the Commission compares the costs of Shoreham and its alternatives only in terms of the first eleven years, rather than on a life-cycle basis. Structuring the comparison this way obviously biases the analysis in favor of the alternatives. Shoreham is a baseload plant, designed to operate over a 40-year life cycle.

Answer 1,
continued:

The Department evaluated the plant's real costs in this context, using reasonable assumptions, and concuded that operating Shoreham would be much more economic over the long term than the proposed decommissioning. The estimated net present value of the implied stream of savings over 40 years is more than $1 billion. This is equivalent to about $1,100 today in the pockets of each of Long Island Lighting Company's 985,000 customers.

Second, "nuclear units are not reliable in their early years." This assertion is not borne out by recent experience. In 1988, the eleven newest units operated at essentially the same performance levels as the average for all other units.

Third, "much of the generating capacity that is now being built to replace Shoreham would have had to be constructed in any case in order to back it up." The Commission's point here is that an operational Shoreham would be an 800 megawatt "lump" on a system totalling about 4500 megawatts, so that an unanticipated Shoreham outage could lead to reliability problems,

Answer 1,
continued:

unless alternative generation capacity were readily available. However, the approach implied by Mr. Bradford, building alternative capacity in the near term, probably would not be the most economic way to cope with this problem.

For the near term, it would almost certainly be preferable to build additional transmission links, at much lower cost, so as to tap power from adjacent systems if needed. Over the longer term, one could build (or contract for) new capacity as needed for demand growth, but bring it on in smaller units to provide an appropriate balance to Shoreham.

Fourth, "the higher financing costs associated with utilities with nuclear exposure ... makes the Shoreham-reliant course more expensive than the alternatives." There are two rejoinders to this assertion. One is that the financing costs would drop considerably once Shoreham became operational. Second, it is questionable whether utilities which operate nuclear plants (as opposed to those with nuclear plants under construction) now face higher financing costs than non-nuclear utilities. If that is a

Answer 1, continued:

concern, however, one solution would be for the New York Power Authority, or some other entity which already operates nuclear facilities, to own and operate the plant.

QUESTIONS FROM SENATOR JOHNSTON

Question 2: An analysis done by Lazard-Freres for the Long Island Power Authority found that closing Shoreham would be 5.2% cheaper than operating it over the next ten years ($17.7 billion to operate the plant and $16.82 billion to close it). Have you seen this analysis? What is your opinion of this analysis?

Answer: We have seen this analysis, which compares the revenue requirements of the Long Island Lighting Company (LILCO) if Shoreham were included in its rate base to the revenue requirements of the Long Island Power Authority (LIPA) if Shoreham is decommissioned.

In our review of the study, we noted several assumptions that would increase the cost of not operating Shoreham. We have serious reservations about assumptions for peak load growth, oil price escalation, and load control. The Energy Information Administration forecasts that peak electricity demand will grow 1.6 percent per year between 1988 and 2000 in New York and New Jersey. The New Settlement Agreement, on which this study is based, forecasts peak demand growth of only 1.3 percent between 1989 and 2000. Even starting at the New Settlement Agreement's conservative projection for 1989 peak demand, this difference in growth rates means that LILCO would need to add about 140 more megawatts of capacity than projected in the New Settlement Agreement by the year 2000. If combustion turbines, the least costly form of capacity, are used to meet this need, EIA believes that LILCO will have to spend about $60 million in additional construction costs in the late 1990's. It should be noted that LILCO's actual peak demand has grown at an average rate of 4 percent per year for the past six years.

We also disagree with the New York Public Service Commission's (NYPSC) assumptions about oil price increases and inflation used in the evaluation of oil generation costs. From 1990 through 2000, the fuel costs for operating oil-fired plants instead of Shoreham would be about $500 million (nominal dollars) higher using the Energy Information Administration's (EIA) estimates for inflation and real escalation rates instead of the NYPSC assumptions. The NYPSC uses an inflation rate of 4.0 percent per year, compared with 4.9 percent for the EIA. The NYPSC also assumes no real escalation in oil prices through 1992 and 2.0 percent per year thereafter. This results in an average real escalation rate of 1.3 percent per year between 1988 and 2000. The EIA results use a real escalation rate of 3.8 percent per year during the same period, for oil prices. The EIA world oil price estimates are the same as those used in the 1989 Annual Energy Outlook. As shown in the attached chart, these estimates and those prepared by Data Resources Incorporated (DRI) and Wharton Econometric Forecasting Associates (WEFA) are substantially higher than those assumed by NYPSC. The assumptions used by EIA for inflation are similar to those provided by DRI and WEFA. A table with year by year fuel cost estimates for EIA and NYPSC is also attached.

Peter Bradford, Chairman of the New York Public Service Commission, testified on April 13, 1989, that LILCO now has less than 20 megawatts of capacity under its direct control, which can be shed during peak periods. Yet the New Settlement Agreement forecasts that LILCO will have control over 200 megawatts of interruptible power by 1992 and 370 megawatts by 2002. If LILCO is able to achieve direct control over only half of this capacity by 2002 (185 megawatts), LILCO would face additional costs of at least $80 million to build the plants that will be needed.

Most importantly, as we noted in response to the previous question, this analysis pertains only to the first eleven years and does not compare the operation of Shoreham and alternatives on a life-cycle basis, which would be more appropriate analytically. Based on a life-cycle analysis, we concluded that operating Shoreham would be more economic over the long term than the proposed decommissioning.

Fuel Prices and Fuel Costs of Replacing Power from Shoreham with Oil-Fired Generation Using Assumptions by the New York Public Service Commission and the Energy Information Administration.

(nominal dollars)

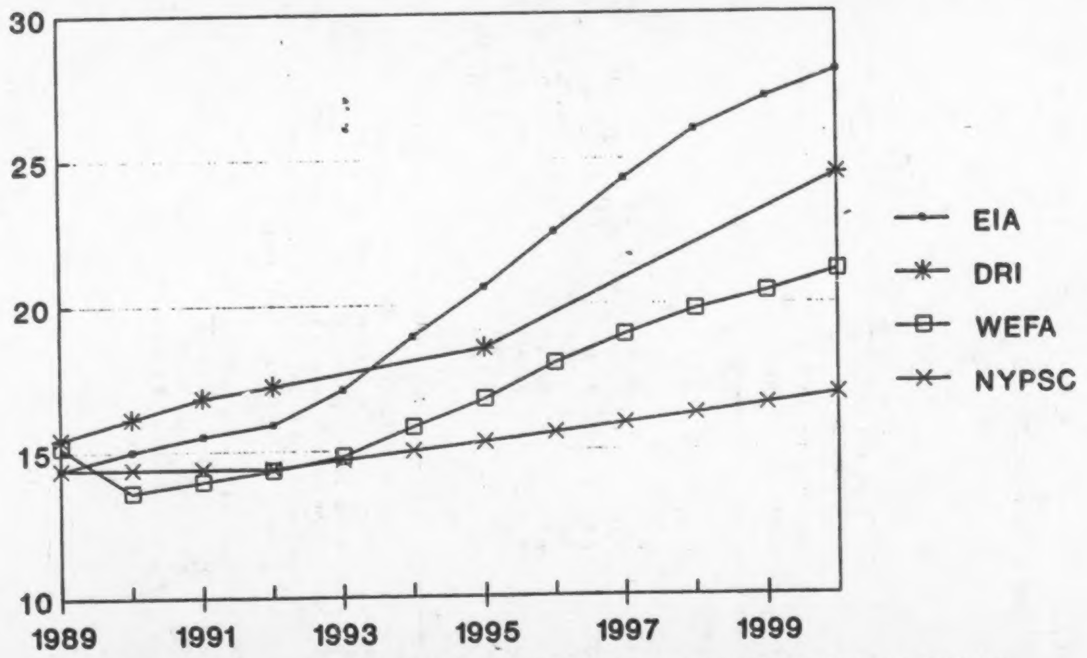
	Fuel Prices ($/mmbtu)		Total Fuel Cost (million dollars)	
Year	NYPSC	EIA	NYPSC	EIA
1990	2.64	2.66	92.94	93.57
1991	2.74	2.82	96.65	99.41
1992	2.85	3.00	128.06	134.58
1993	3.03	3.31	135.96	148.64
1994	3.21	3.76	144.34	169.33
1995	3.40	4.22	153.24	190.29
1996	3.60	4.78	162.95	215.93
1997	3.82	5.33	173.26	241.57
1998	4.05	5.90	184.23	268.23
1999	4.29	6.35	195.88	289.75
2000	4.55	6.79	208.28	310.85
Total			1675.79	2162.14

Note: NYPSC uses an inflation rate of 4.0 percent per year. EIA uses an inflation rate of 4.9 percent per year. NYPSC assumes no real escalation in oil prices through 1982 and 2.0 percent per year thereafter, which averages out to a rate of 1.3 percent per year between 1988 and 2000. The average real escalation rate for EIA's oil prices is 3.8 percent per year.

Note: These results assume a heat rate of 10000 btu/kwh for oil-fired steam plants. It also assumes that the capacity factor for Shoreham in 1990 and 1991, the first two full years of operation would be 50 percent. It would increase to about 64 percent in 1992 and 65 percent by 2000.

Comparison of World Oil Prices

(Real 1988 dollars per barrel)



Source: EIA--Annual Energy Outlook 1989; NYPSC--Chairman Bradford's letter to Senator Johnston; DRI--Energy Review, Winter 1988-89; WEFA--Energy Analysis Quarterly, Winter 1989.

QUESTIONS FROM SENATOR JOHNSTON

Question 3: Secretary Moore's testimony contains information on the reliability of electricity supply and, specifically, on LILCO's ability to maintain adequate reserve capacity. The Department has also provided to the Committee a chart, prepared by the Office of Energy Emergencies, on the status of LILCO capacity, which indicates that LILCO's reserve could drop as low as 4.3% (chart attached). The State of New York's analysis of reliability of supply and anticipated reserve capacity is quite different. Please reconcile these differences for the Committee, indicating what assumptions are contained in each analysis.

Answer: The differences among the estimates of reserve margins for the summer of 1989 provided by the Department and Chairman Peter A. Bradford of the New York Public Service Commission are more apparent than real. All parties would readily agree with Chairman Bradford that "Unanticipated growth in demand, the loss of generating unit availability and transmission difficulties could cause problems this summer."

The Long Island Lighting Company (LILCO) expects to have capacity resources of about 4,492 megawatts in the summer of 1989. This estimate is based on updated information provided by Office of Energy Emergencies (Attachment A) and replaces the chart supplied during testimony to the committee, which was a projection for the summer of 1988. Estimates of reserve margins vary from 19.0 percent to no margin at all, depending on the growth in LILCO's peak demand this summer, LILCO's ability to use demand-side management to reduce its peak, and the extent of unplanned outages.

While Chairman Bradford does not provide a 1989 peak load growth rate, he states that "recent load growth estimates have been on the order of 2 percent." The updated estimate by the Office of Energy Emergencies uses a growth rate supplied by LILCO (1.6 percent), which assumes significant demand-side management. The DOE testimony assumes that peak demand will grow at 4 percent in 1989, as it has for the past 6 years.

The Office of Energy Emergencies estimates that LILCO will be able to use 110 megawatts of demand-side management in the summer of 1989. Given the Office of Energy Emergencies' assumptions about demand-side management, the 1989 reserve margin would be 19.0 percent. Similarly, Chairman Bradford estimates that the reserve margin would be 18.9 percent. With a 4 percent growth rate, the reserve margin would be 16.2 percent. LILCO does not have direct control over all 110 megawatts, and its ability to achieve this level of load management is untested. A more conservative approach would be to count as demand-side management only those resources over which LILCO has direct control, which is the approach used by the North American Electric Reliability Council.

Chairman Bradford assumes that the forced outage rate for LILCO will be only about 7 percent during the summer of 1989. A more conservative approach would use the forced outage rate for the New York Power Pool (14 percent), as did the DOE Office of Energy Emergencies. With 14-percent forced outages taken into account, Chairman Bradford's reserve margin estimate would be reduced to 4.7 percent, as compared to the DOE Office of Energy Emergencies' estimate of no reserve margin. The DOE Office of Energy Emergencies estimate notes that the power supply situation could deteriorate further if power is unavailable from New York State Electric and Gas (NYSEG). In the worst case--assuming a 4-percent growth rate, demand-side management of less than 110 megawatts, a forced outage rate of 14 percent, and the unavailability of power from NYSEG--LILCO would make public appeals to reduce consumption, reduce voltage, and ultimately initiate rotating blackouts.

1989 Reserve Margin Comparisons

	New York Public Service Commission	DOE Office of Energy Emergencies	4 Percent Growth in DOE Testimony (d)
Peak Load (megawatts)	3878	3885	3975
Adjustment For Demand Side Management (megawatts)	109	110 (a)	110
In System Generating Capacity (e)			
LILCO	b	3797	
Available from Long Island Mun.	b	35	
IPPs and Cogenerators	b	20	
Subtotal		3852	
Capacity Purchases			
LILCO share of Nine Mile Point 2	b	194	
Purchase from NYPP	b	96	
Purchase from Con. Edison	b	250	
Available from New York State Elec. & Gas	b	100	
Subtotal		640	
Total Capacity (megawatts)	4480	4492	4492
Estimated Reserve Margin (percent)	18.9	19.0	16.2
Adjustment for capacity unavailable (megawatts)	c	813	
Adjusted Reserve Margin (percent)	c	0.0	

a - The New York Power Pool (which includes LILCO) reported 0 megawatts of demand-side-management in 1988, yet LILCO has reported 110 megawatts for 1989.

b - Mr. Bradford (the chairman of the New York Public Service Commission) did not specify the components of LILCO's capacity in his testimony.

c - Mr. Bradford did not report an adjusted reserve margin. The Office of Energy Emergencies used the unavailable generation data for the New York Power Pool, which averaged 21.1 percent (14.3 percent forced outages, 5.3 percent scheduled maintenance, and 1.5 percent other unavailable) in 1988. Mr. Bradford reported that LILCO's forced outage rate was less than 7 percent. Using the 7-percent forced outage rate cited by Mr. Bradford would result in a total outage rate of 13.8 percent (532 megawatts) and an adjusted reserve margin of 4.7 percent for LILCO in 1989.

d - The testimony assumed that peak load continues to increase 4 percent per year as it has over the last 6 years. The 1988 summer peak load for LILCO occurred in August and it was 3822 megawatts. However, at the time of this peak load LILCO had instituted public appeals to their customers to conserve electricity, thus this historical peak includes some demand-side load management.

e - The location of the LILCO system with interconnections only to west and the north makes it important to separate the in-system generating resources from the imported electric power capacity. An extended transmission line outage could have a very negative impact on the LILCO system. Currently, one of the 138kV underwater circuits (143 megawatts of power import capacity on each circuit) that connects LILCO to the New England area is out of service due to cable failure. The spare for this circuit has also failed. Repairs to both cables are scheduled to be completed by the summer of 1989, but it could take longer.

QUESTIONS FROM SENATOR JOHNSTON

Question 4: Future demand growth projections by the Energy Information Administration and the North American Electric Reliability Council have generally stayed in the area of 2.5% per year, in spite of the fact that electricity demand has grown at approximately double that rate for several years in New England and on Long Island. What is the reason for not adjusting demand growth projections based on several years of consistent growth in electricity demand? What are the assumptions that lead to the conclusion that this high growth will not continue?

Answer: The Energy Information Administration and the North American Electric Reliability Council have not significantly changed their intermediate-range forecasts, because underlying economic conditions have not changed, and because the forecasts assume normal weather conditions. Even though New England and Long Island experienced strong growth in electricity demand in 1987 and 1988, from 1980 to 1988 New England's demand grew at an annual rate of 3.5 percent and Long Island's demand grew at 3.0 percent.

Forecasts of electricity demand are typically based on expectations for economic growth. Industrial and commercial activity is expected to continue to grow moderately over the next 10 years and population is expected to grow less rapidly than in the past 10 years. Because such underlying trends change slowly, forecasters look more carefully at them than at short-term phenomena, such as weather. Changes in temperature were partly responsible for New England's and New York's unusual surge in demand in 1987 and 1988. The summer of 1987 was hotter than that of 1986, and 1988 was hotter still, leading to increased use of air conditioning.

QUESTIONS FROM SENATOR JOHNSTON

Question 5: The $2.5 billion tax write-off for LILCO for an abandonment loss has been deemed to be legal and valid within the provisions of the tax code, according to a private letter ruling from IRS of July 1988. I question, however, the logic of such a tax write-off since the plant is completed, able to be operated, and in fact, needed to supply power on Long Island. In addition, I am not convinced that there is any guarantee that the plant will not ultimately be operated, perhaps by someone other than LILCO, to meet anticipated needs for electricity. Under all of these circumstances, I wonder whether it really makes sense for this plant to be written off as an abandonment loss.

Have you asked the IRS to re-look at this situation in light of potentially changed circumstances such as the likelihood that NRC will vote on a full-power license for Shoreham by the end of next week; the likelihood that the plant will ultimately be needed to provide electricity?

Answer: The Department has not asked the IRS to reexamine last year's private letter tax ruling. However, LILCO has asked for a review and the IRS has confirmed its decision approving the deduction of an estimated $2.5 billion of the cost for construction of the Shoreham plant. In view of the IRS decision, it is not our intention to ask the Service to take a new look.

QUESTIONS FROM SENATOR JOHNSTON

Question 6: Has the Department done any analysis of the tax consequences of abandonment of the plant versus the tax consequences of operating the plant and allowing accelerated depreciation? What has the analysis shown?

Answer: The Department has done a preliminary analysis of the potential revenue impact of a firm taking an abandonment loss of the size publicly estimated to occur in the Shoreham case versus the presumed tax treatment that would occur in the event a firm were to take accelerated depreciation under the relevant Internal Revenue Code Sections. The conclusions are based in large part on testimony presented by the State Public Utility Staff and conversations with counsel for LILCO.

DOE has not independently confirmed LILCO'S actual tax liabilities during the period of the analysis. Moreover, DOE has not incorporated estimates of the costs of decommissioning an operating nuclear powerplant nor the costs of building a replacement plant using tax free financing 40 years earlier than would otherwise be necessary.

Answer 6 continued: It should also be noted that while Federal energy tax policy has been consistent in terms of encouraging capital formation, in this instance, it appears that actions by the State of New York have rendered an asset that would otherwise produce income and tax revenues into an asset that will be totally useless and a loss to both the taxpayers and the ratepayers.

The analysis of relevant tax laws suggests strongly that the actual tax liability of a firm in LILCO'S purported position would not materially change given either operation or abandonment of the Shoreham plant. This occurs primarily because, as discussed below, we have been informed that LILCO will probably have to carry forward the tax benefits of the abandonment loss over a number of years and therefore the timing and net present value of the deductions that purportedly would be available to LILCO are roughly equivalent under each computation.

For example: if the Shoreham plant is or becomes commercially operable, the amount that would potentially be available for accelerated

Answer 6 continued: depreciation under applicable Internal Revenue Code Sections is approximately $2.6-$2.8 billion dollars. Under prior Code Section 168(c)(2)(C), this amount would qualify for recovery by way of accelerated depreciation over ten years. Such treatment would permit considerably more depreciation deductions in the first years after the plant is in operation than would be available under straight-line depreciation.

Additionally, prior Internal Revenue Code Section 48 purportedly applies to this type of asset. Consequently, up to approximately $200 million dollars in investment tax credits (ITC's) would potentially be applicable if the plant were commercially operated. A portion or all of these credits may not be available in the event the plant does not operate. However, the time necessary to recover the depreciable costs associated with the plant would be roughly the same whether it is operated or abandoned.

Under the facts of the LILCO agreement that have been made public, an amount of approximately 2.8 billion dollars may be deemed an abandonment loss and used to generate Net

Answer 6
Continued: Operating Losses (NOL's) and NOL carryforwards in the event that LILCO can not use this loss in the year it is incurred. Under this treatment, according to New York PUC staff testimony, it will probably take LILCO approximately 5 or more years to utilize fully their loss carryforward. The net present value of accelerated depreciation plus ITC's potentially available would be roughly equal to the net present value of this abandonment loss. Consequently, the tax treatment of operating or abandoning the plant is roughly the same.

It should be emphasized, however, that by rendering an asset like Shoreham which is capable of producing income, into a worthless asset and thereby causing additional costs to be incurred to replace this productive asset, society in general and New York specifically bear significant economic losses that are not part of this tax analysis. As noted above, this analysis does not discount all of the direct and indirect costs associated with dismantling and replacing this asset. With respect to these costs, it should be noted that the Long Island Power Authority (LIPA), which

Answer 6 continued: under the Settlement Agreement will purchase Shoreham for $1.00 and contract for its decommissioning, obtained a special transition rule in 1987 permitting LIPA to issue tax free financing.

QUESTIONS FROM SENATOR MCCLURE

Question 1: **As overseer of energy policy, what action is the Department contemplating to help alleviate the near-term and long-term electricity shortages in the Northeast?**

Answer: We will take advantage of every opportunity to articulate forcefully the importance of maintaining reliable and economically efficient electricity supply systems in all regions of the Nation. We will also clarify and seek to remove key obstacles to the achievement of this objective, by providing appropriate analyses.

It is important to realize that although the Northeast is particularly capacity-short at present, all regions of the Nation are likely to need significant amounts of new generating capacity in the 1990s. We need to find ways to ensure that timely investments in new capacity are made, and that economically appropriate decisions are made in selecting fuels and generation technologies.

QUESTIONS FROM SENATOR MCCLURE

Question 2(a):	Is the Department following up on implementation of President's executive order of last fall, which clarified FEMA's role with respect to emergency planning for nuclear facilities?
Answer:	The Department of Energy was involved in the interagency review of the interim rule (44 C.F.R. Part 352) put forth by FEMA on February 28, 1989. The interim rule specified what actions and processes FEMA would utilize to execute the Executive Order. DOE's comments were incorporated during the interagency review and the Department is continuing to monitor the implementation of the Executive Order.

QUESTIONS FROM SENATOR MCCLURE

Question 2(b) Has the Department considered any other options it could utilize to preserve the Shoreham asset? Could the Federal government, for instance, buy the plant (hopefully for $1, since that seems to be the going rate), and operate it for national energy security purpose?

Answer: The Department is considering a number of options to preserve the Shoreham plant. The Department strongly opposes the dismantling of this fully-licensed and readily available source of electricity. The Nuclear Regulatory Commission must approve both the license transfer to the Long Island Power Authority and the decommissioning plan for the Shoreham plant. The Department is considering what options it has to participate in the NRC proceedings to oppose the license transfer and decommissioning.

The Department currently has no plans to purchase the Shoreham plant. As you are aware, the Department and the National Laboratories operate a number of nuclear reactors for both defense related and non-weapons purposes, such as the production of isotopes which are not commercially available from domestic sources, for medical and industrial applications. In addition, the Department therough Power Marketing Administrations markets and transmits electric power generated from Federal water and irrigation projects.

It should also be noted that the New York Power Authority currently owns and operates two nuclear powerplants in in New York State.

QUESTIONS FROM SENATOR MCCLURE

Question 3(a) In your opinion, how likely is it that Long Island Power Authority (LIPA), which we all know is merely a shell organization, could ever qualify to receive the license to process the Shoreham plant?

Answer: The Long Island Power Authority, in accord with Nuclear Regulatory Commission regulations, would have to demonstrate sufficient technical expertise, a substantial enough organization to ensure safety, and a quality assurance program that could satisfy NRC regulations. Since the transfer to LIPA represents a case of first impression, we are not in a position to state with certainty whether LIPA will be able to satisfy the above considerations. We do note, however, that LIPA has no expertise in, and no experience with, any activity which involves nuclear facilities.

QUESTIONS FROM SENATOR MCCLURE

Question 3(b):	In your opinion, how long would it take to prepare and seek approval by the NRC of a decontamination and decommissioning plan for the Shoreham plant? During this time, what would be the status of the plant--would it be in limbo such as it is now, so that if the situation worsened with respect to energy supplies, people would have the opportunity to reconsider the option of operating the plant?
Answer:	According to a 1988 update by the Long Island Lighting Company, it would take approximately 24 months to create a decontamination and decommissioning plan and get it approved by the NRC. During that time and pending such decommissioning, LILCO will maintain the Shoreham plant at least cost in accord with the Settlement Agreement. The opportunity to reconsider the option of operating the plant will be available until and unless the NRC gives final approval to decommission the plant.

QUESTIONS FROM SENATOR MCCLURE

Question 3(c) **What if the NRC refused to transfer the Shoreham license or refused to approve of the D&D plan? Would the Cuomo agreement be invalidated?**

Answer: The agreement would not become effective if the NRC either did not transfer the Shoreham license to the Long Island Power Authority (LIPA) or did not approve a decontamination and decommissioning plan. The Asset Transfer Agreement between the Long Island Lighting Company and LIPA provides for the transfer of Shoreham assets to an entity designated by LIPA in the event LIPA is not capable of effecting the license transfer.

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION
ALBANY 12223

PETER A. BRADFORD
CHAIRMAN

THREE EMPIRE STATE PLAZA
(518) 474-2530

June 7, 1989

J. Bennett Johnston
Chairman, U.S. Senate Committee
on Energy and Natural Resources
Washington, D.C. 20510-8150

Dear Senator Johnston:

Enclosed are my responses to the questions which you and Senator McClure propounded as a follow-up to my testimony at the hearing held by the Senate Energy and Natural Resources Committee on electricity supply and demand on April 13, 1989.

Please let me know if I can be any further assistance to the Committee.

Sincerely,

Peter Bradford

Enclosure
lc/689-45

RESPONSES TO SENATOR JOHNSON'S QUESTIONS

1. Economic comparison between Shoreham and alternatives

My testimony before the Senate Committee on Energy and Natural Resources on April 13 and the follow-up materials submitted on April 18 by Bill Cowan, our General Counsel, fully explain the economic superiority of the Shoreham settlement to the alternatives. The analyses performed by Lazard-Freres for the Long Island Power Authority (LIPA) independently confirm these results. There is no credible evidence or analysis that even implies that Shoreham operation would produce lower rates than the settlement for at least ten years; and under the most favorable credible assumptions the net benefits of running Shoreham would not exceed the costs for about 15-20 years. LILCO has estimated a $200-600 million present value benefit from Shoreham operation, but that estimate is based entirely on benefits that commence after the year 2002. As a result, the benefit, not large in any case, is highly speculative. For example, if, as seems likely, the decommissioning estimate is $200 million too high, LILCO's estimate of the present value benefits of running Shoreham would shrink to between $50 million and $450 million.

The reasons for economic superiority of the settlement are: operating and maintenance expenses, post-operation capital additions, the higher capital costs of being a nuclear utility with a heavy dependence on a single unit and added property taxes of Shoreham operation will offset projected fuel savings. Continuing to fight about Shoreham needlessly prolongs uncertainty and litigation, both about the plant's operation and its prudent cost. If, for example, LILCO prevailed in its lawsuit challenging the Commission's imprudence disallowance, ratepayers would lose more than $1 billion of currently disallowed "imprudent" costs. Moreover, there are costly financial risks to LILCO if it operates Shoreham, not the least of which is the unhealthy asset concentration in this single facility, which has no track record. There are several qualitative factors, summarized in the April 14 Staff study submitted by Mr. Cowan, that further exacerbate the cost disadvantages of Shoreham operation. Finally, the currently planned capacity additions, demand side management plans and capacity bidding opportunities must be pursued in any case. Even if Shoreham operates, its availability to meet peak demands cannot be guaranteed, especially in the early years. Therefore, the alternatives are still needed.

The statement that the settlement causes ratepayers to pay for Shoreham three times is false. Ratepayers pay for the plant three times whether it runs or not. If it runs, they pay 1) the prudent cost of construction, 2) the cost of operation plus backup power plus capital additions and 3) a much higher decommissioning cost.

2. Lazard-Freres Study

Mr. Cowan provided two Lazard-Freres studies prepared for the Long Island Power Authority in his April 18 letter; if you have further questions on those studies you should contact LIPA.

3. Explanation of Financial Resource Asset

The finacial resource asset was negotiated by the parties to the settlement to establish the minimum stream of future revenues that would enable LILCO to stave off bankruptcy and return to an acceptable financial condition over a ten-year period. The FRA consists of two components: the base financial component (BFC), calculated at $3.656 billion (as of July 1, 1988) and amortized over 40 years; and the rate moderation component (RMC), which is essentially the near-term addition of interest to the BFC due to the deferral of revenues that will be collected later, thereby levelizing the rate increases.

I have appended the relevant pages of the Staff witnesses' testimony that explains its development (Appendix A). The BFC was not based on "prudent" Shoreham costs and that it represents a consensus figure designed to resolve outstanding controversies and litigation concerning Shoreham and various other issues. The BFC is approximately $300 million less than the current estimate of "prudent" Shoreham costs (i.e., subtraction of the $1.395 billion disallowance from the current Shoreham work order costs of approximately $5.5 billion). However, if Shoreham were to operate, this rate base figure would rapidly rise because of the need for post-operation capital additions. Moreover, the settlement's proposed resolution of the above-mentioned case of LILCO v. PSC would no longer be effective. If LILCO were to prevail in subsequent hearings and appeals, ratepayers could be saddled with more than $1 billion of additional costs.

4. Transfer to LIPA for Decommissioning

The Shoreham settlement, particularly the Amended and Restated Asset Transfer Agreement, dated March 31, 1989 (Appendix B), contemplates that LILCO will transfer Shoreham assets to LIPA, which would arrange with the New York Power Authority (NYPA) for the decommissioning and dismantlement of Shoreham. Upon approval of the settlement by LILCO's shareholders, the company will immediately remove the nuclear fuel rods and place them in a storage pool; and it will then seek a revised license from the Nuclear Regulatory Commission (NRC). The parties would then prepare the application for the transfer and decommissioning of the facility. NYPA has extensive nuclear experience operating the Fitzpatrick and Indian Point 3 nuclear units.

We have no reason to believe that the NRC would unreasonably hold up the decommissioning and dismantlement of a facility that the owner is obligated to transfer and abandon. Protracted delay would certainly increase overall decommissioning costs, which is in nobody's interest. The irradiation of the unit has been minimal (less than five full power days) and the bulk of the work would involve the physical destruction of the facility and restoration of the site. Of course, such demolition work is performed throughout the nation on a regular basis and requires no innovative technology.

One of my colleagues, Commissioner James McFarland, wrote to Chairman Lando Zech of the NRC on this question and received the attached response from Victor Stello, Executive Director for Operations at the NRC (Appendix C). The response identifies no conceptual difficulties with the proposed decommissioning and instead states that the issues will be addressed when the necessary filings are made.

Under the settlement, NYPA would perform the decommissioning work on behalf of LIPA; it is not contemplated that the license would be transferred to NYPA. The asset transfer agreement, however, provides that if the Settlement becomes effective and the transfer of Shoreham assets to LIPA does not occur, LILCO is obligated to transfer the assets to a third party designated by LIPA on similar terms.

5. Decommissioning Costs

The Shoreham Settlement assigns a $350 million cost to decommissioning, which equates to $240 million in present value terms. This figure was not derived from a detailed study of Shoreham-specific features; instead the study incorporated inputs that tended to produce a high estimate.

Shoreham's total operating history consists of the equivalent of less than five full power days of operation. Therefore, the cost of decommissioning the Shoreham plant will be much less than the cost of decommissioning a plant that operates for 30 years because the major decommissioning expenses for Shoreham will involve the physical dismantlement of a very slightly irradiated plant rather than the disposal of radioactive materials.

The cost estimate for the Shoreham settlement also appears relatively high in comparison to other electric utility industry estimates. For example, Public Service of Colorado, which has sporadically operated the Fort St. Vrain (330 MW) nuclear plant at levels up to full power since 1979, has tentatively decided to close the plant because of operating problems. Its latest decommissioning cost estimate for this fully irradiated plant is $159[1] million in present value terms, an amount substantially below the estimate used for Shoreham. Given the divergent operating histories of the two plants, the actual Shoreham decommissioning cost should be below the cost for Fort St. Vrain.

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[1] Merrill Lynch, Reinstated Opinion, 12/1/88; estimate prepared by Bechtel Power Corp.

The estimate in the Shoreham settlement represents an upper bound of the range of reasonable estimates. Lower decommissioning costs, of course, further enhance the economics of the Shoreham settlement. And, in any event, the fact that decommissioning costs will be capitalized and recovered over 40 years will substantially dampen the impact of any variance of actual costs from the estimated costs.

6. Pre-Decommissioning Costs

The cost of maintaining the facility prior to decommissioning has been examined and has been factored into our forecasts. These include interest, insurance, personnel costs, consultants charges, property taxes and materials and supplies costs. Once the settlement becomes effective upon shareholder approval, the costs can be reduced significantly because non-essential personnel can be released, insurance premiums are reduced, property taxes begin to decline, consulting services are no longer required and many other items, such as retrofit construction costs, can be avoided.

The settlement does not include the very substantial costs that would be caused by "mothballing" or holding Shoreham in reserve.

A delay in decommissioning the plant would not tilt the scales in favor of plant operation. Staff's economic study compares the costs of operating Shoreham (less its fuel savings) against the cost of building and operating alternative sources of replacement power. The principal cost items included in that analysis are not affected by a delay in decommissioning. The most critical of these are fuel oil prices, nuclear operation and maintenance costs, post-operation construction retrofits and the assumed reliability of the plant. Fuel oil prices determine the operating savings of the plant based on the assumed capacity factor. Operation and maintenance costs and retrofits continue whether the plant produces output or not. As stated above, the costs of peaking capacity would still be incurred if Shoreham were to operate in order to assure reliability. Finally, the cost of decommissioning will increase if the plant operates. The plant must still be decommissioned at the end of its useful life after much more radiation exposure. And funding the cost of decommissioning would begin now and be assessed against current ratepayers.

For all of the above reasons, even a totally implausible delay in obtaining decommissioning approval (for example, to 10 years) would not override the economic benefits of the settlement.

7. Alternative Energy Supplies

Our monitoring of the progress made by NYPA in constructing the Long Island Sound crossing transmission line indicates that the project is on schedule and that the facility may well be in operation by the summer of 1991. The other alternative measures that I discussed in my testimony will continue to be pursued. Even if completion of the line is delayed until 1992, LILCO is projected to have sufficient capacity to satisfy projected demands and reserve requirements.

The Iroquois Gas Transmission project, or one of the other planned facilities, should be completed by 1992. But, as I noted in my testimony, the long-term electric supply forecasts rely on only a fraction of the planned gas-fired cogeneration. And the amounts relied upon in these studies would not require the addition of a new major transmission line until the mid to late 1990's.

I discussed at some length in my testimony the alternative energy supply plans for a non-Shoreham future. I noted the "possible construction" by NYPA of three 300 MW combined cycle units with scheduled in-service dates of 1997, 1999 and 2001. As part of the Shoreham settlement (in particular the Memorandum of Understanding between LILCO and NYPA), LILCO may request NYPA to construct such baseload facilities. The estimated cash costs of the three units are $260 million, $293 million, and $323 million, respectively. Combined cycle units are not technologically complex and should require less than three years to construct.

As we move ahead with capacity and demand side management bidding, superior plans may evolve. Therefore, the three 300 MW combined cycle units should be viewed as a safety valve measure that would be pursued if needed and more desirable alternatives do not emerge.

8. Staff's study entitled "Comparative Economics of Shoreham and Shoreham In-Service," previously sent by Bill Cowan, describes several operational factors that favor the Shoreham settlement over Shoreham operation. The study identified the potential reliability problems associated with the operation of an "immature" nuclear plant; explained that a new nuclear plant may need at least one year to reach a reliable level of operation; showed that unscheduled outages would add to customer costs; and described the asset concentration risks caused by the extraordinary size of this one facility. These

features partially explain why inherently uncertain items such as capacity factors and financial costs support adoption of the settlement.

An additional feature is the capital intensity of operating nuclear plants versus alternative sources of power. Between 1989 and 2002 LILCO would spend an average of $80 million a year for post-commercial additions to Shoreham, excluding any new retrofits required by the NRC. LILCO will also finance about $30 million a year for Shoreham fuel. This $1.5 billion total exceeds the $1.0 billion that LILCO would spend if it constructed the three combined cycle plants identified in the settlement.[1] Moreover, LILCO would spend significantly less if the need for these three units was satisfied through either NYPA construction with fixed carrying charges to LILCO or bidding. This adds further cost containment assurance to the settlement.

---

[1] LILCO would need to construct the 1989 gas turbines and have the Sound Cable in place in the early 1990s regardless of whether Shoreham operates.

ANSWERS TO SENATOR McCLURE'S QUESTIONS

1. Rate increases; fuel adjustment clause

Under the Shoreham settlement we approved in Opinion No. 89-8, electric rate increases of 5% will take effect on December 1, 1989 and December 1, 1990. Thereafter, the plan includes "target" annual rate increases of 4.5%-5% through the 1990's (less than 1% per year in real terms since inflation is assumed to be 4%). Rate decisions after 1991 will be based on a thorough examination of all relevant factors. Please refer to Staff's analyses of the comparative impacts of the Shoreham settlement and the "Shoreham in" scenario, transmitted by Bill Cowan on April 18, for a detailed description of rate projections.

Variations in fuel costs and the costs of certain external purchases by LILCO are reflected in the fuel adjustment clause (FAC), which is updated monthly. The FAC has been in place for electric utilities in various forms since 1919, and its component costs are carefully reviewed by Staff monthly. On numerous occasions, Staff has uncovered errors, which are then corrected by the utilities. Moreover, we have frequently exercised our statutory authority to direct refunds (with interest) of excessive fuel costs, previously flowed through to ratepayers, that were incurred because of imprudent utility actions. The Shoreham settlement we approved explicitly recognizes this authority: "Nothing in this Rate Moderation Agreement is meant to affect in any way the PSC's authority to review the prudence of fuel component costs and to disallow imprudently incurred fuel component costs."

2. Reserve Margins

New York's seven investor-owned electric utilities and the New York Power Authority have formed a pooling arrangement, called the New York Power Pool (NYPP), in order to improve the reliability and cost efficiency of the state's power supply. The New York Power Pool Agreement provides, among other things, that each member company maintain 18% excess capacity as a reserve against unforeseen losses of generating units. This reserve margin may include both owned and firm purchase capacity. If any member is not able to maintain such required reserve, due to outages or higher than anticipated peak load, the member must compensate the other members for covering the deficiency. These payments or penalties are calculated retroactively at the end of each calendar year after a review of actual system peaks and generating availability. The amount of the penalty is determined by calculating the number of megawatts (MW) of deficiency and multiplying that result by the $14,000/MW penalty rate specified in the Agreement.

During 1985, LILCO incurred a deficiency penalty in the amount of $1,078,000. This amount was not passed through the Fuel Adjustment Clause to customers; instead the company's stockholders had to bear the cost. Under longstanding Commission practice, penalties are not recoverable from ratepayers. Moreover, the Commission may properly charge utility shareholders for other costs related to the failure to properly plan for reserve requirements, such as emergency purchases.

Contrary to your information (whose source is not identified), the most up-to-date information does not indicate LILCO reserve margins below 18%. We anticipate that LILCO will be able to meet its NYPP reserve requirements for 1989 and 1990 through a combination of new peaking capacity (238 MW of gas turbines scheduled to be completed this summer), purchases from on-island independent power producers, upgraded transmission capacity and specific demand-side management peak load reductions. These reserves assume forecasted peaks based upon very warm summer weather such as the summer of 1988. Beyond 1990, increases in transmission capacity, independent power production, demand-side management and eventually planned baseload generating additions are expected to provide sufficient reserve margins through the 1990's.

As more fully explained in Staff's "Comparative Economics" study, Shoreham, in the early years of its operating life, cannot be counted on as a reliable source of power. Experience shows that new nuclear plants tend not to operate reliably. Therefore, LILCO would need to make the energy supply commitments (with the exception of firm capacity purchases) that are now planned even if Shoreham were to operate.

Recent experience at Nine Mile Point 2, another nuclear plant within New York State, underscores the reliability problems of nuclear facilities. Since the plant began commercial operation in April 1988, it has been out of service more often than it has operated. For the first year of its operation, its capacity factor was 28%.

3. Public Service Commission's Rate Proceeding

The rate proceeding that ultimately culminated in our approval of a rate moderation plan has been pending for almost 2 1/2 years. Our proceedings, of course, are open to the public, and in this case parties representing divergent interests have participated from the start.

Since December 1986, when LILCO filed for a $102.3 million rate increase, we have carefully scrutinized LILCO rate and service matters, through more than 20 days of hearings with a record comprising more than 5,000 pages and over 100 exhibits, and we have issued several important decisions.

First, in Opinion No. 87-26 (December 1987), after a 12-month hearing process, the Commission denied LILCO's requested rate increase and encouraged LILCO and all interested parties to break the Shoreham deadlock. In April 1988, LILCO reported that negotiations had not been successful and requested a $97.7 million rate increase. Negotiations continued, however, and on June 16, 1988, Governor Cuomo, LILCO and various other parties submitted a proposed settlement that would close Shoreham and gradually restore LILCO's financial health. During July and August hearings were held and briefs were submitted on the settlement, which also required legislative approval. The Commission approved the 1988 settlement in Opinion No. 88-29 (November 1988), but it did not become effective because of inaction by the State Legislature. Thereupon, LILCO requested that its pending rate request be put into effect immediately and that the rates be permanent thereafter. Hearings were held in December and February (1989), and briefs were submitted. The Commission granted the temporary rate request on February 16, 1989.

On February 28, LILCO and Governor Cuomo signed the "1989 settlement," which called for the Commission to set "just and reasonable rates." Parties were invited to submit rate plans; the Commission, however, found that the rate determinations made in November 1988 "would provide an appropriate point of departure" and advised the parties "to address, among other things, any changes in circumstances that may have an impact on...[those] determinations." The views of the public and the parties' rate proposals were heard at three days of hearings (March 22-24), and briefs were submitted to the Commission. In Opinion No. 89-8 (issued April 13), the Commission approved the 1989 settlement and the proposed rate moderation plan submitted by Staff, which was essentially an update of the rate plan contained in the 1988 settlement.

In a "normal" rate proceeding involving a major utility the Commission may legally (and frequently does) take up to 11 months to issue its decision. If parties settle their differences or if temporary rates are needed, rate decisions may be issued in less than 11 months. Hearings, of course, are open to the public, and intervenors actively participate in the hearings. As you can see, the procedures employed in the LILCO rate case were more than adequate for interested parties to present their views and for the Commission to be fully apprised on the issues.

The asset transfer agreement we approved in Opinion No. 89-8 was initially submitted on June 16, 1988 and reviewed at the hearings in July 1988. The 1989 settlement required the Commission to approve a revised asset transfer agreement "amended...to reflect revisions contemplated by [the 1989 settlement] or required by the passage of time." The amended asset transfer agreement was filed on March 31, and the Commission's careful review of it revealed no material changes. Thus, there was no reason to delay approval of it, since the Commission and the parties had been aware of its terms for more than nine months. It was approved in the Commission's Opinion in the LILCO rate proceedings, which was issued April 13, 1989.

MISCELLANEOUS

The last answer given in the questions and answers attachment to my testimony should read:

Q. Does the Shoreham settlement raise rates on Long Island by some 70% over 10 years?

A. Absolutely not. The settlement lowers rates on Long Island compared to any achievable alternative. It is true that the settlement produces rates higher than those in existence today, but today's rates would rise even more during that time period with Shoreham in operation. Alternatives entailing the pursuit of a LILCO bankruptcy are undesirable because of the resulting uncertainty, prolongation of the Shoreham controversy, severe financial consequences and potential jurisdictional problems. Another potential alternative -- a takeover by the Long Island Power Authority -- seems inferior to the settlement. LIPA itself has discontinued efforts to acquire LILCO and has concluded that the settlement will produce lower rates.

Finally, the Committee requested that we attempt to reconcile disparate information provided by DOE and the New York panel concerning LILCO's expected reserve margin this summer. We are unable to fulfill this request because we do not have access to the DOE information. We contacted DOE before the hearing to request a meeting so that we could discuss our differences and work up a common set of assumptions where possible. DOE has never responded.

APPENDIX A

STAFF PANEL

Q. Please explain the Financial Resource Asset (FRA) (Subparagraph 2d).

A. The FRA consists of a Base Financial Component (BFC) and a Rate Moderation Component (RMC). The BFC, which totals $3.656 billion, is reported on the balance sheet as an asset*, included in rate base, and amortized over a 40-year period. The recovery of this asset in rates is intended to restore LILCO to financial health. More specifically, we believe the recovery of the BFC will enable LILCO to achieve an investment grade rating in the short-term and an "A" bond rating by the mid to late 1990s.

The RMC reflects the accumulated revenues that LILCO defers by constraining its rate increases to the specified levels in the Agreement. Since LILCO must pay its day-to-day expenses such as O&M, taxes, fuel, interest, and preferred dividends, the yearly RMC accumulation effectively represents the revenue effect of LILCO deferring a portion of the equity return on the BRC. While the RMC initially increases as revenues are deferred, the amortization will reverse and we estimate that the RMC will be eliminated by approximately the end of 1998.

Q. Please describe the settlement of a number of outstanding of high cost preferred stock.

---

*LILCO will classify it as a plant account.

The restoration of common stock dividends is based on a schedule provided by LILCO. As noted in the Agreement, actual dividends are paid at the discretion of the company's Board of Directors; the Agreement itself does not require such payouts. The resumption of common dividend payments has two positive effects. First it should help restore investor confidence in the company and thereby reduce the cost of equity. Second, this restoration of investor confidence in LILCO's common stock provides the company an additional mode of financing if it becomes necessary.*

Q. Please explain how the FRA was established and how it is recovered.

A. As noted earlier the FRA has two components, the BFC and the RMC. The recovery of the BFC is the feature of the Agreement that provides LILCO its financial support. The BFC balance was calculated with reference to the company's Financial Stability Adjustment (FSA) revenues, with the objectives of initially obtaining financial parameters close to investment grade and A rated financial parameters by 1998. In effect, the annual FSA payment has been translated into a balance sheet asset. More specifically, the current net-of-tax cash flow that LILCO receives from the FSA was calculated at $243 million, the most recent level established for LILCO by the Commission in Opinion No. 87-26. Then, the amount of FSA cash flows required over 40 years, based on a 4.0% inflation rate and the effectuation of the Agreement in the second half of 1988, was calculated. These cash flow streams were then discounted at 10%, an approximation of LILCO's overall cost of capital for the next 40 years, to develop the present value of $3.656 billion. This is the value of the BRC which will be included in rate base and amortized over 40 years.

---

* The Agreement assumes no common equity issues.

Q. Please describe the RMC.

A. The RMC reflects the revenues that LILCO will defer, on a net-of-tax basis, as a result of the initial rate constraints established in the Agreement. The RMC starts at zero when this Agreement is approved, increases to roughly $540 million by 1993 and then deceases to zero again in 1998. Once the amortization of the RMC ends in 1988, an immediate rate reduction follows in 1999 to reflect the elimination of the amortization.

Q. Will the amortization of the BFC over 40 years cause continual increases in LILCO's rates?

A. No. In fact, the revenue requirement effect of the BFC is the greatest during its first few years. More specifically, the BFC revenue effect can be divided into two components, a constant amortization and a return on the unamortized BFC balance. As the BFC is amortized the amount of revenues required to provide a return on the unamortized balance declines. Thus the BFC revenue requirement declines over time.

This declining effect on rates is supported in Exhibit __ (Staff Panel-2). The average forcasted cost of electricity per year from 1998-2002 is as follows:

	Cents/kwh	% Change
1998	18.14	
1999	17.27	(4.8)
2000	17.39	.7
2001	17.85	2.6
2002	18.10	1.4

These cost estimates indicate that the BFC will have little effect on LILCO's rates after 1998. They also indicate that the Commission could reduce rates immediately in 1999 and authorize small increases thereafter, or freeze rates in 1999, at 1998 levels, through 2002.

V. Benefits of the Agreement

Q. Please explain why you believe the Agreement to be in the public interest.

A. The Agreement would establish "just and reasonable rates" to enable LILCO to provide "safe and adequate service." The Settlement provides that LILCO will transfer, abandon and discontinue the licensing of Shoreham and will ultimately

APPENDIX B

RECEIVED
APR 3 - 1989
PUBLIC SERVICE COMMISSION
OFFICE OF COUNSEL

March 31, 1989

BY TELECOPY

Honorable John J. Kelliher
New York State Department
of Public Service
Three Empire State Plaza
Albany, New York 12223

Cases 29484 and 88-E-084

Dear Secretary Kelliher:

The attached document, entitled the Amended and Restated Asset Transfer Agreement, is hereby presented for Public Service Commission approval consistent with the terms of the 1989 Settlement Agreement between Long Island Lighting Company and the State of New York. The Amended and Restated Asset Transfer Agreement updates the 1988 Asset Transfer Agreement, which has been a subject of cross-examination and inquiry in the captioned cases. The 1988 Asset Transfer Agreement was conditionally approved by the Commission in its November 18 Order regarding the 1988 Settlement (Opinion No. 88-29). The updates merely reflect the 1989 Settlement and the passage of time. For the Commission's convenience, we have also enclosed a black-lined copy of the agreement marked to show changes from the 1988 Agreement. The Amended and Restated Asset Transfer Agreement is in the form agreed to by the undersigned and will be presented in such form to the respective Boards of LILCO and LIPA for their approval by April 15, 1989.

We respectfully request that the Commission approve the Amended and Restated Asset Transfer Agreement in conjunction with its consideration of the 1989 Settlement Agreement and the rate proceedings that have been the subject of the recent hearings in Cases 29484 and 88-E-084. We suggest that the Commission approve

March 31, 1989
Honorable John J. Kelliher
Page 2

the Agreement conditioned upon approval of the Agreement without material modification by LIPA's Board of Trustees and LILCO's Board of Directors.

Very truly yours,

Stanley Klimberg

Stanley B. Klimberg
Acting Executive Director and
General Counsel for LIPA

Victor A. Staffieri

Victor A. Staffieri
General Counsel
Long Island Lighting Company

cc: Federal Express to All Parties to Cases 29484 and 88-E-084
Hand Delivered to the Following:
Mr. Kevin Murphy, 655 Associates, Inc.
Mr. Mitchell Paley, The Long Island Association
Gregg O'Neil, Esq., Hills, Betts and Nash
Lou Lewis on Behalf of the Shoreham Wading
  River School District
Eric Hellerman, Cahill Gordon & Reindel

AMENDED AND RESTATED ASSET TRANSFER AGREEMENT

BETWEEN

LONG ISLAND LIGHTING COMPANY
AS TRANSFEROR

AND

LONG ISLAND POWER AUTHORITY
AS TRANSFEREE

DATED AS OF JUNE 16, 1988,
AS AMENDED AND RESTATED AS OF APRIL __, 1989

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AMENDED AND RESTATED ASSET TRANSFER AGREEMENT

THIS **AMENDED AND RESTATED ASSET TRANSFER AGREEMENT** dated as of June 16, 1988, as amended and restated as of April __, 1989, by and between the **Long Island Lighting Company** (LILCO), a New York corporation, and the **Long Island Power Authority** (LIPA), a corporate municipal instrumentality and political subdivision of the State of New York, which was created pursuant to Chapter 517 of the 1986 Laws of New York which supercedes, in its entirety, the ASSET TRANSFER AGREEMENT dated as of June 16, 1988 by and between LILCO and LIPA.

WITNESSETH:

WHEREAS, LILCO, the State of New York, the Staff of the Department of Public Service of the State of New York, the Consumer Protection Board, the Urban Development Corporation, NYPA and LIPA entered into a settlement agreement dated as of June 16, 1988 (the 1988 Settlement Agreement) that contemplated, among other things, the resolution of the controversy over the Shoreham Nuclear Power Station and the transfer of the Shoreham assets to LIPA;

WHEREAS, the 1988 Settlement Agreement did not become effective;

WHEREAS, LILCO and the State of New York have entered into a subsequent settlement agreement dated as of February 28, 1989 (the Settlement Agreement) that contemplates, among other things, the resolution of the controversy over the Shoreham Nuclear Power Station and the transfer of the Shoreham assets to LIPA;

WHEREAS, NYPA and LIPA will enter into a definitive agreement pursuant to which NYPA will, among other things, provide technical advice and assistance to LIPA with respect to the radiological health and safety and decommissioning of Shoreham;

WHEREAS, LIPA and LILCO intend to enter into a Site Cooperation and Reimbursement Agreement prior to the Closing;

WHEREAS, it is intended that all NYPA costs, including Costs, incurred from the date hereof in connection with this Agreement and the decommissioning of Shoreham will be reimbursed by LILCO; and

WHEREAS, LIPA and LILCO desire to amend and restate the Asset Transfer Agreement, dated as of June 16, 1988, into an Amended and Restated Asset Transfer Agreement that reflects the Settlement Agreement and the passage of time since the execution of such Asset Transfer Agreement.

NOW, THEREFORE, in order to carry out the transactions contemplated by this Agreement and in consideration of the respective representations, warranties and covenants and of the mutual agreements below, LILCO and LIPA agree as follows:

ARTICLE I

DEFINITIONS

1.1 Agreement. This Amended and Restated Asset Transfer Agreement, including all its Exhibits and Schedules, dated as of June 16, 1988 and amended and restated as of April __, 1989, between LILCO and LIPA.

1.2 Asset Transfer. The transfer of the Assets to LIPA from LILCO under the terms and conditions of this Agreement.

1.3 Assets. The Assets will include the following, but not include the Other Property:

(a) The real and personal property described on Exhibit C;

(b) The Contracts listed on Exhibit D;

(c) The Licenses listed on Exhibit E; and

(d) Copies of the books and records set forth on Exhibit K hereto, and any other books and records that the Parties agree will be transferred under this Agreement.

Notwithstanding any other provision of this Agreement, Assets will include such property or interests in property as are necessary for the decommissioning of Shoreham or as are required by the NRC to be owned by LIPA.

1.4 Assignment Agreement. The agreement, in the form of Exhibit F, assigning LILCO's rights and obligations, to the extent assignable under the respective instruments, in the Licenses and Contracts. LILCO will use its best efforts to have the Licenses and Contracts assigned to LIPA.

1.5 Closing. The closing of the Asset Transfer at which all deliveries will be made and title to the Assets transferred.

1.6 Closing Date. The date on which the Closing occurs and the Asset Transfer contemplated by this Agreement becomes effective, which date will be set by the Parties five business days in advance. The Closing Date will also be the effective date of the License Transfer.

1.7 Comparative Rate Determination. The determination by the Board of Trustees of LIPA that the rates projected to be charged after the acquisition of Shoreham pursuant to this Agreement will not be higher than the rates projected to be charged if such acquisition had not occurred.

1.8 Consents. The consents and approvals necessary for the consummation of the transactions contemplated by this Agreement and to be listed on Exhibit G promptly after the execution of this Agreement and revised as of the Closing Date if a Contract, License or lease requiring consent or approval is added to, or deleted from, Exhibit D or Exhibit E.

1.9 Contracts. All contracts with vendors and suppliers and other third parties providing goods and services, leases, commitments, sales orders and other agreements, including any rights to warranty provided therein for claims relating to the period after the Closing Date, relating exclusively to Shoreham and to be listed on Exhibit D promptly after the execution of this Agreement and updated, if necessary, as of the Closing Date to add Contracts executed in the ordinary course of business and delete any contract that expires by its terms. Exhibit D will also separately list the Other Contracts.

1.10 Costs. All costs, expenses (including fuel and plant disposal costs and expenses), losses, claims, damages, liabilities, judgments and amounts paid in settlement, whether direct or indirect.

1.11 Costs Attributable to Shoreham. (a) All Costs incurred by LIPA or NYPA that are attributable to the ownership, operation, possession or maintenance of Shoreham by LILCO prior to the Closing Date, (b) all Costs incurred by LIPA or NYPA from June 16, 1988 to the Closing Date in connection with the Asset Transfer or the License Transfer, (c) all Costs incurred by LIPA or NYPA after the Closing Date attributable to LIPA's or NYPA's ownership, possession, maintenance, decommissioning or dismantling of Shoreham and (d) all Costs for the taxes or in-lieu-of payments on the Assets and Other Property incurred in accordance with the statutory obligations of LIPA or the Settlement

Agreement (it being understood that LILCO has agreed to pay such Costs); provided, however, that (x) in no event will LILCO pay any of LIPA's administrative and general costs that are not directly related to Shoreham and (y) Costs Attributable to Shoreham will not include (A) Costs resulting from the willful misconduct or gross negligence of the Power Authorities as determined by a final non-appealable order or judgment of a court of competent jurisdiction or (B) costs relating to any breach by LIPA of a representation, warranty or agreement under this Agreement.

1.12 Deed. The instrument, in the form of Exhibit A, by which all interests in any real property will be transferred.

1.13 DPS. The Staff of the Department of Public Service of the State of New York.

1.14 Entity. Any corporation, individual, partnership, joint venture or governmental authority.

1.15 Exchange Act. The Securities Exchange Act of 1934, as amended.

1.16 Fence. The Fence to be located as shown on Schedule C-1 to Exhibit C of this Agreement.

1.17 First Mortgage. The Indenture of Mortgage and Deed of Trust by and between LILCO and IBJ Schroder Bank & Trust Company, as successor trustee, dated as of September 1, 1951, as amended or supplemented by indentures supplemental thereto and as the same may be further amended or supplemented.

1.18 General and Refunding Indenture. The General and Refunding Indenture by and between LILCO and United States Trust Company of New York, as successor trustee, dated as of June 1, 1975, as amended or supplemented by indentures supplemental thereto and as the same may be further amended or supplemented.

1.19 Indemnified Party. An Entity entitled to receive indemnification under this Agreement.

1.20 Indemnifying Party. An Entity obligated to provide indemnification under this Agreement.

1.21 Legal Requirement. As to any Entity, the charter and by-laws or other organizational or governing documents of such Entity, and any law, rule or regulation, or order, decree, injunction or determination of an arbitrator or a court or other governmental authority in each case applicable to or binding upon such Entity or any of its property or to which such Entity or any of its property is subject, including, without limitation, the rules and regulations of the NRC, and any certificate of occupancy, zoning ordinance, building, environmental or land use permit or occupational safety or health law, rule or regulation.

1.22 License Transfer. The transfer of Shoreham's NRC licenses from LILCO to LIPA after approval by the NRC. The effective date of the transfer will be the Closing Date.

1.23 Licenses. All licenses, permits and other approvals relating exclusively to Shoreham, to the extent transferable, and to be listed on Exhibit E promptly after execution of this Agreement and revised, if necessary, prior to the Closing Date; provided, however, that the revision will not result in the elimination of any License that is material to the operation of Shoreham. Exhibit E will also separately list the Other Licenses.

1.24 Liens. Any mortgages, pledges, liens, security interests, conditional and installment sale agreements, encumbrances, claims, charges or encumbrances of any kind.

1.25 LILCO. Long Island Lighting Company, a New York corporation, and, where the context permits, its directors, officers, employees and agents.

1.26 LIPA. Long Island Power Authority, a corporate municipal instrumentality and political subdivision of the State of New York, which was created pursuant to Chapter 517 of the 1986 Laws of New York, and, where the context permits, its trustees, officers, employees and agents, but not including NYPA, unless explicitly identified.

1.27 NRC. Nuclear Regulatory Commission.

1.28 NYPA. New York Power Authority, and, where the context permits, its trustees, officers, employees and agents.

1.29 Other Contracts. All contracts with vendors and suppliers and other third parties providing goods and services, leases, commitments, sales orders and other agreements relating to Shoreham, but not exclusively to Shoreham, and to be listed on Exhibit D promptly after the execution of this Agreement and updated, if necessary, as of the Closing Date to include Other Contracts entered into in the normal course of business and to delete any Other Contract relating to Shoreham that expires by its own terms.

1.30 Other Licenses. All licenses, permits and other approvals relating to Shoreham, but not exclusively to Shoreham, and to be listed on Exhibit E promptly after the execution of this Agreement and revised, if necessary, prior to the Closing Date.

1.31 Other Property. Any Shoreham property listed as Other Property on Exhibit C to this Agreement and the causes of action by LILCO against suppliers and contractors for Shoreham relating to the period before the Closing Date.

Prior to the Closing Date, LILCO may wish to add to or may be required to subtract from the list of Other Property set forth on Schedule C-2. Such additions or subtractions, however, will always provide LIPA with such Assets as (i) are necessary to the decommissioning of Shoreham or (ii) are required by the NRC to be owned by LIPA. To the extent that the requested additions or required subtractions may be added to or subtracted from the category of Other Property to satisfy the criteria specified in the preceding sentence, the list of Other Property will be expanded or contracted. Subtractions from the list of Other Property will not require the approval of the Power Authorities. The Other Property that is movable will be moved off the Shoreham site by LILCO prior to the Closing Date or as soon as practicable thereafter.

1.32 Party. LILCO or LIPA, as the case may be.

1.33 Parties. LILCO and LIPA, collectively.

1.34 Permitted Liens. (a) Liens for current taxes not yet due, (b) minor imperfections of title and encumbrances, if any, that, individually or in the aggregate, are not substantial in amount, do not detract from the value of the property subject thereto or impair Shoreham and have arisen only in the ordinary course of business and consistent with past practice and (c) the First Mortgage, the General and Refunding Indenture and the Third Mortgage and any permitted liens thereunder.

1.35 Personalty Transfer Agreement. The instrument, in the form of Exhibit B, by which all interests in any personal property constituting part of the Assets will be transferred.

1.36 Power Authorities. LIPA and NYPA, collectively, and where the context permits, their respective trustees, officers, employees and agents.

1.37 Proxy Statement. The definitive proxy statement to be prepared by LILCO and furnished to the shareholders of LILCO pursuant to Section 5.7 of this Agreement and to be filed with the SEC in connection with the approval of the Asset Transfer by LILCO's shareholders.

1.38 PSC. Public Service Commission of the State of New York.

1.39 Regulatory Approvals. The approval of the transactions contemplated by this Agreement or the disclaimer of jurisdiction over them by each regulatory body that, in the opinion of either LILCO or LIPA, governs these transactions or from which LILCO or LIPA reasonably desires to obtain a disclaimer of jurisdiction, including, without limitation, the PSC and the NRC.

1.40 SEC. Securities and Exchange Commission.

1.41 Settlement. The resolution of outstanding issues relating to the Long Island Lighting Company, the State of New York, and the PSC except those matters relating to present and future electric rates.

1.42 Settlement Agreement. A settlement agreement dated February 28, 1989 between LILCO and the State of New York that contemplates, among other things, the Settlement and the Asset Transfer.

1.43 Settlement Effective Date. The effective date of the Settlement as provided in the Settlement Agreement.

1.44 Shareholders' Meeting. The meeting of shareholders as described in Section 5.7 of this Agreement.

1.45 Shoreham. The 809MW Shoreham Nuclear Power Station located at Shoreham, New York that consists of (a) the Assets, (b) the Other Property and (c) any intangible property relating to the property described in (a) or (b).

1.46 Site Agreement. A mutually acceptable Site Cooperation and Reimbursement Agreement to be executed by LILCO and LIPA prior to the Closing that will provide, among other matters, (i) the terms and conditions on which (A) LIPA and NYPA will be provided access to facilities or properties of LILCO necessary to the Shoreham-related activities of LIPA and NYPA and (B) LILCO will be provided access to such of the Assets necessary to the activities of LILCO, (ii) the terms and conditions, subject to Subsection 5.3(b), on which LILCO employees previously assigned to Shoreham will be made available to the Power Authorities, (iii) the specific provisions for accounting of, billing for and auditing of Costs Attributable to Shoreham consistent with Sections 1.10 and 5.3(a) of this Agreement, (iv) the services LILCO and the Power Authorities will be required to provide to each other to ensure a cost efficient use of Shoreham and (v) that such agreement will take effect on the Closing Date and will continue in effect until LIPA's and NYPA's activities at Shoreham are completed.

1.47 Third Mortgage. The Mortgage by and between LILCO and CitiBank, N.A., as mortgage agent, dated as of August 22, 1984.

1.48 Third Party Claim. The assertion by a person who is not a party to this Agreement of any claim or of the commencement by any such person of any action or proceeding.

ARTICLE II

TRANSFER OF ASSETS; CLOSING; RE-TRANSFER

2.1 Transfer of Assets. Upon the terms and subject to the conditions of this Agreement, LILCO will transfer the Assets to LIPA at the Closing. The Other Property will not be transferred under this Agreement. The Parties agree that, except to the extent otherwise provided by this Agreement, the Assets will be transferred "AS IS," subject to the Permitted Liens, by the Deed, the Personalty Transfer Agreement or the Assignment Agreement as the case may be.

2.2 Transfer Price. In consideration for the transfer of the Assets, LIPA will pay LILCO $1.00 at the Closing. The Parties acknowledge that LIPA is not assuming any liabilities of LILCO pursuant to this Agreement, including, without limitation, liabilities under the First Mortgage, the General and Refunding Indenture and the Third Mortgage.

2.3 Time and Place of Closing. The Closing will take place on the Closing Date, which will be as soon as practicable after the satisfaction of the conditions in Articles VI and VII below, at the offices of Hunton & Williams, 100 Park Avenue, New York, New York.

2.4 Deliveries at the Closing. At the Closing, LILCO will deliver to LIPA the following:

(a) copies of the books and records included in the Assets;

(b) the Deed;

(c) the Personalty Transfer Agreement;

(d) the Assignment Agreement;

(e) a reasoned opinion of counsel if required by Section 7.8 of this Agreement; and

(f) all other previously undelivered documents required to be delivered by one Party to the other at or prior to the Closing pursuant to this Agreement.

2.5 Re-transfer. Upon the completion of the decommissioning of Shoreham, LILCO will have the right to have any real property portion of the Assets then owned by LIPA, other than that real property on which improvements (generally, the power plant) are situated, transferred back to LILCO on terms hereinafter set forth. LIPA will convey to LILCO such real property portion of the Assets, subject only to such exceptions to title as existed on the date such real property portion of the Assets was conveyed by LILCO to LIPA. LIPA will give LILCO written notice of the completion of decommissioning within 30 days of its completion. From such date of notice, LILCO must exercise its rights under this Section 2.5 within 1 year. LIPA, or its successor, will retain an easement for access to any real property not transferred to LILCO pursuant to this Section. The price for any property transferred pursuant to this Section will, if the benefit of LILCO's ownership accrues to LILCO ratepayers because the re-transferred real property is used for a generating plant, be $1, plus (i) the fair market value of any improvements to the property made by LIPA, unless LILCO has already paid for these improvements, and (ii) any costs of the re-transfer. If the re-transferred real property is used for any other purpose, the price will be fair market value and LIPA will use the proceeds to benefit LILCO ratepayers.

ARTICLE III

REPRESENTATIONS AND WARRANTIES OF LILCO

LILCO represents and warrants to LIPA as follows:

3.1 Organization. LILCO is a corporation duly organized, validly existing and in good standing under the laws of the State of New York and LILCO has the requisite corporate power and authority to carry on its business as now being conducted.

3.2 Authority Relative to this Agreement. LILCO has the corporate power and authority to execute and deliver this Agreement and, subject to the approval of this Agreement by LILCO's shareholders as contemplated by Section 5.7 and receipt of the Regulatory Approvals and the Consents, to consummate the transactions contemplated by the Agreement. The execution and delivery of this Agreement and the consummation of the transactions contemplated hereby have been duly and validly authorized by the Board of Directors of LILCO. The Board of Directors of LILCO will recommend that its shareholders approve the Agreement; and no other corporate proceedings (other than approval of the Agreement by the shareholders of LILCO) on the part of LILCO are necessary to authorize the Agreement or to consummate the transactions it contemplates. The Agreement has been duly and validly executed and delivered by LILCO and, subject to shareholder approval and assuming that it constitutes a valid and binding obligation of LIPA, constitutes a valid and binding agreement of LILCO, enforceable against LILCO in accordance with its terms, except that (a) such enforcement may be subject to bankruptcy, insolvency, reorganization, moratorium, or other similar laws now or hereafter in effect relating to creditors' rights, and (b) the remedy of specific performance and injunctive and other forms of equitable relief may be subject to equitable defenses and to the discretion of the court before which any proceeding may be brought.

3.3 Consents and Approvals. Except for the Regulatory Approvals and the filing of the Proxy Statement with the SEC pursuant to the Exchange Act, no filing or registration with, no notice to and no permit, authorization, consent or approval of any public authority is required for LILCO to execute and deliver this Agreement and to consummate the transactions contemplated hereby. Assuming that all filings, approvals and other matters contemplated by the immediately preceding sentence have been duly accomplished, except for the Consents, to the best of LILCO's knowledge, neither the execution and delivery of this Agreement, the consummation of the transactions contemplated nor the conduct of LILCO's business relating to Shoreham will (a) violate, conflict with or result in a breach of any provision of the Certificate of Incorporation or By-laws of LILCO, (b) result in a violation or breach of, or constitute (with or without due notice or lapse of time, or both) a default (or give rise to any right of termination, cancellation or acceleration) under, any of the terms, conditions or provisions of any note, bond, mortgage, indenture, license, lease, agreement or other instrument or obligation to which LILCO is a party, or by which LILCO or any of its properties or assets may be bound, or (c) violate any Legal Requirement applicable to LILCO or by which any of its properties or assets may be bound, excluding from the foregoing clauses (b) and (c) defaults or violations that would not, individually or in the aggregate, have a material adverse effect on the business, properties, financial condition or results of operation of LILCO.

3.4 Licenses. The Licenses include all licenses, permits and other approvals required for the operation of Shoreham substantially as it is currently operated unless the failure to have any license, permit or other approval, individually or in the aggregate, would not have a material adverse effect on the business, properties, financial condition or results of operations of LILCO or the transactions contemplated by this Agreement. LILCO has fulfilled and performed all of its obligations with respect to the Licenses and no event has occurred that allows, or after notice or lapse of time would allow, their revocation or termination or result in any other material impairments of the rights of the holder of any License, and the Licenses contain no restrictions that are materially burdensome to LILCO.

3.5 Proxy Statement. The information with respect to LILCO to be contained in the Proxy Statement will not, on the date the Proxy Statement is first mailed to shareholders of LILCO or on the date of the Shareholders' Meeting, as such Proxy Statement is then amended or supplemented, contain any statement that, at such time, is false or misleading with respect to any material fact, or that omits to state any material fact required to make the statements not false or misleading or to correct any statement in any earlier filing with the SEC of the Proxy Statement or any amendment to it or any earlier communication to shareholders of LILCO with respect to the Asset Transfer. If at any time prior to the Closing any event with respect to LILCO occurs that is or should be described in an amendment of, or a supplement to, the Proxy Statement, the event will be so described and its presentation in the amendment or supplement will not contain any statement that, at the time and in light of the circumstances under which it is made, is false or misleading with respect to any material fact or omits to state any material fact required to make the statements not false or misleading or to correct any statements in any earlier communication to shareholders of LILCO with respect to the Asset Transfer. The Proxy Statement will comply as to form with all applicable laws, including the provisions of the Exchange Act.

3.6 Insurance. Shoreham is insured in a manner consistent with prudent utility practice followed by companies owning like properties, including all insurance required by the NRC; all material insurance policies are in full force and effect; all premiums due on them have been paid, and no notice of cancellation or termination has been received with respect to any such policy. Promptly after the execution of this Agreement, LILCO will provide LIPA with a list of all such material insurance policies on Exhibit H hereto.

3.7 Descriptions; Insurability. Promptly after the execution of this Agreement, LILCO will provide LIPA with legal descriptions of each parcel of real property owned or leased by LILCO that constitutes the Assets on Exhibit I hereto. Except as will be provided prior to Closing on Exhibit J, there are no material outstanding requirements, recommendations or requests from any insurance company, the Board of Fire Underwriters, any mortgagee or any governmental or quasi-governmental agency requiring or proposing any repairs or work to be done at such property, or pertaining to the maintenance of such property, employment of labor or working conditions.

3.8 Leases. No part of the real property that constitutes the Assets is leased by LILCO.

3.9 Property Status. The Assets will be transferred to LIPA free and clear of any and all Liens, other than Permitted Liens. The Deed, Personalty Transfer Agreement and Assignment Agreement are in form sufficient to convey the property or property interests that they purport to convey. LILCO now owns, or at the Closing Date will own, the Assets.

3.10 Disclosure. No representations or warranties by LILCO in this Agreement and no statement contained in any document furnished by LILCO to LIPA pursuant to the provisions of, or in connection with the transactions contemplated by, the Agreement, will contain any untrue statement of material fact or omit any material fact necessary, in light of the circumstances under which it was made, in order to make such statement not misleading.

ARTICLE IV

REPRESENTATIONS AND WARRANTIES OF LIPA

LIPA represents and warrants to LILCO as follows:

4.1 Organization. LIPA is a corporate municipal instrumentality and political subdivision of the State of New York and was created by legislation of the State of New York (Chapter 517 of the 1986 Laws of New York) and has the requisite corporate power and authority to carry on its business as now being conducted.

4.2 Authority Relative to this Agreement. LIPA has full power and authority to execute and deliver this Agreement and, subject to the approval of this Agreement by LILCO's shareholders, receipt of the Regulatory Approvals and the satisfaction of the condition with respect to the Comparative Rate Determination, to consummate the transactions contemplated by this Agreement. The execution and delivery of this Agreement and the consummation of the transactions it contemplates have been duly and validly authorized by the Board of Trustees of LIPA; no other corporate proceedings on the part of LIPA are necessary to authorize this Agreement or to consummate the transactions it contemplates. This Agreement has been duly and validly executed and delivered by LIPA and, assuming that it constitutes a valid and binding obligation of LILCO, constitutes a valid and binding agreement of LIPA, enforceable against LIPA in accordance with its terms, except that (a) such enforcement may be subject to bankruptcy, insolvency, reorganization, moratorium, or other similar laws now or hereafter in effect relating to creditors' rights, and (b) the remedy of specific performance and injunctive and other forms of equitable relief may be subject to equitable defenses and to the discretion of the court before which any proceeding may be brought.

4.3 Consents and Approvals. Except for the filing of the Proxy Statement with the SEC pursuant to the Exchange Act, and the Regulatory Approvals, no filing or registration with, no notice to and no approval of any public authority is required for LIPA to execute and deliver this Agreement and to consummate the transactions it contemplates. Assuming that everything contemplated by the immediately preceding sentence has been duly accomplished, to the best of LIPA's knowledge, the execution and delivery of this Agreement and the consummation of the transactions contemplated will not (a) result in a violation or breach of, or constitute (with or without due notice or lapse of time or both) a default (or give rise to any right of termination, cancellation or acceleration) under, any of the terms, conditions or provisions of any note, bond, mortgage, indenture, license, agreement or other instrument or obligation to which LIPA is a party or (b) violate any Legal Requirement applicable to LIPA or by which any of its properties or assets may be bound, excluding from the foregoing clauses (a) and (b) defaults or violations that would not, individually or in the aggregate, have a material adverse effect on the business, properties, financial condition or results of operation of LIPA.

4.4 Proxy Statement. The information with respect to LIPA to be contained in the Proxy Statement will not, on the date the Proxy Statement is first mailed to shareholders of LILCO or on the date of the Shareholders' Meeting, as such Proxy Statement is then amended or supplemented, contain any statement that, at such time, is false or misleading with respect to any material fact, or that omits to state any material fact required in order to make the statement not false or misleading or to correct any statements in any earlier filing with the SEC of the Proxy Statement or any amendment to it or any earlier communication to shareholders of LILCO with respect to the Asset Transfer. If at any time prior to the Closing any event with respect to LIPA occurs that is or should be described in an amendment of, or a supplement to, the Proxy Statement, the event will be so described and its presentation in the amendment or supplement will not contain any statement that, at the time and in light of the circumstances under which it is made, is false or misleading with respect to any material fact or omits to state any material fact required to make the statement not false or misleading or to correct any statement in any earlier communication to shareholders of LILCO with respect to the Asset Transfer.

4.5 Disclosure. No representations or warranties by LIPA in this Agreement and no statement contained in any document furnished by LIPA to LILCO pursuant to the provisions of, or in connection with the transactions contemplated by, the Agreement, will contain any untrue statement of material fact or omit any material fact necessary, in light of the circumstances under which it was made, in order to make such statement not misleading.

ARTICLE V

AGREEMENTS OF LILCO AND LIPA

5.1 Conduct of Business by LILCO. (a) Prior to April 15, 1989, LILCO will (i) maintain Shoreham in compliance with all regulatory requirements and (ii) not operate Shoreham above 5% power. On and after April 15, 1989, if all approvals required by the Settlement Agreement, except shareholder approval, have been received, LILCO will not operate Shoreham pursuant to any authorization to operate Shoreham that may or has been granted by the NRC, unless the Settlement is disapproved by LILCO's shareholders. After the Settlement Effective Date, LILCO will not operate Shoreham pursuant to any authorization to operate it that may be or has been granted by the NRC.

(b) Promptly after the Settlement Effective Date, LILCO will (i), unless previously accomplished, remove the fuel from Shoreham's reactor and deposit the fuel in the Shoreham spent fuel pool, (ii) withdraw LILCO's pending applications to the NRC for 25% and 100% power operating licenses and cease all steps to prosecute these applications, (iii) apply to the NRC for a "possession only" license and/or other license amendments as are necessary to facilitate the License Transfer, (iv) cooperate with representatives of the Power Authorities on transition and personnel planning and report matters of significance concerning the status of Shoreham, and (v) notify the Power Authorities of any emergency or other change in the normal status of Shoreham and of any regulatory or governmental complaints, investigations, hearings or proceedings (or communications indicating that the same may be contemplated) if such events would be material.

(c) During the period commencing on June 16, 1988 and continuing until the Closing or earlier termination of this Agreement, neither Party will take any action that would result in the representations and warranties of that Party contained in this Agreement being untrue or incorrect in any material respect as of June 16, 1988 or at any future date.

(d) If the Settlement becomes effective but this Agreement is terminated without the Closing having occurred, LILCO will enter into an agreement with a third party designated by LIPA pursuant to which Shoreham will be transferred to such third party on terms substantially similar to this Agreement.

(e) Notwithstanding any other provision in this Agreement, LILCO will neither remove nor otherwise affect Other Property (i) except after consulting with NYPA and giving due consideration to minimizing Costs Attributable to Shoreham or (ii) if inconsistent with an NRC approved decommissioning plan.

5.2 Transfer of Shoreham to LIPA. (a) Promptly after the Settlement Effective Date, LILCO and LIPA, jointly, will (i) request that the NRC transfer Shoreham's NRC licenses to LIPA and (ii) seek the other Regulatory Approvals for the Asset Transfer, except for PSC approval which will have been obtained on or before the Settlement Effective Date. LILCO will make any filings required by Article 31B of the New York State Tax Law and any filings required by the County of Suffolk, State of New York with respect to transfer taxes.

(b) No document (other than the Proxy Statement) will be filed with any Federal regulatory body requesting the approval of the Asset Transfer or the License Transfer unless it has been approved by both LILCO and LIPA. LILCO and LIPA, subject to NYPA review and consent, which will not be unreasonably withheld, will cooperate in the preparation and filing of all such documents, and in the conduct of all proceedings, necessary for the License Transfer and the other Regulatory Approvals necessary to consummate the Asset Transfer.

5.3 Funding, Management and Staffing of Shoreham. (a) LILCO will pay LIPA for Costs Attributable to Shoreham. LIPA will cause NYPA to provide LILCO with an annual cash requirements budget showing NYPA's Shoreham cash requirements by month at least three months in advance of the beginning of the year to which the budget applies. Within 30 days following submission of this budget, LILCO will notify NYPA and LIPA of any questions or comments concerning the budget. All of LILCO's comments and questions will be considered in good faith and LIPA will cause NYPA to promptly prepare and submit to LILCO a final revised budget. Bills for Costs Attributable to Shoreham will be given to LILCO on a monthly basis in accordance with the terms of the Site

Agreement. These bills will include supporting information and will be certified as to accuracy and conformity with this Agreement and the Site Agreement by an appropriate NYPA officer. LILCO intends to submit copies of the annual budget and the monthly bills to the PSC for its review and comment. LILCO and NYPA will be subject to audit by a nationally recognized accounting firm or another firm mutually agreed to by the Parties to ensure that costs incurred and billed are, in fact, Costs Attributable to Shoreham or Shoreham Costs incurred by LILCO, as the case may be. LILCO will advance LIPA a reasonable amount of operating or other funds if such funds are required to be advanced by any regulatory authority having jurisdiction over Shoreham or if LILCO and LIPA agree that such funds should be advanced.

(b) On and after the Closing Date, LILCO will use its best efforts to make available those of its employees previously assigned to Shoreham whom NYPA selects as needed for its activities at Shoreham; provided, however, LILCO may assign or transfer certain of such employees elsewhere in its system, consistent with its own needs and objectives giving due regard to minimizing Costs Attributable to Shoreham.

5.4 Access. (a) Beginning on the Settlement Effective Date and continuing until the Closing Date or the earlier termination of this Agreement, LILCO will allow LIPA's authorized representatives, including representatives of NYPA, access during normal business hours to Shoreham and any documents (as they then exist, not requiring additional work) that are material to Shoreham's operations; this will not, however, (i) create any obligation to maintain or retain any records other than in the ordinary course of business or (ii) interfere in any substantial way with the ongoing conduct of LILCO's business.

(b) LILCO agrees that on and after the Closing it will allow LIPA's authorized representatives, including representatives of NYPA, during normal business hours to have access to and examine and take copies of all books and records (as they then exist, not requiring additional work) of LILCO relating to Shoreham which are not a part of the Assets (including, but not limited to, correspondence, memoranda, books of account and payroll records); this will not, however, interfere in any substantial way with the ongoing conduct of LILCO's business. All books and records relating to Shoreham which are not delivered to LIPA hereunder will be preserved by LILCO in accordance with such prudent utility practice as LILCO would have observed had the Assets not been transferred.

(c) The Power Authorities agree to hold in confidence, unless compelled to disclose by judicial or administrative process, all documents and information concerning Shoreham furnished to LIPA or NYPA in connection with the transactions contemplated by this Agreement (except to the extent that such information or documents (i) were generally available to the public other than as a result of a disclosure by LIPA or NYPA, (ii) available to LIPA or NYPA on a non-confidential basis prior to disclosure to them by LILCO or (iii) available to LIPA or NYPA on a non-confidential basis from a source other than LILCO, provided that such source is not known, and by reasonable effort could not be known, by LIPA or NYPA to be bound by a confidentiality agreement with LILCO or otherwise prohibited from transmitting the information to LIPA or NYPA by a contractual, legal or fiduciary obligation) and LIPA or NYPA will not release or disclose such information to any other person, except its advisors in connection with this Agreement who will have first been advised of the confidentiality provision of this Section 5.4 and have agreed to comply with such provisions. If the transactions contemplated by this Agreement are not consummated, (1) such confidence shall be maintained except to the extent the information comes into the public domain through no fault of LIPA or NYPA, and, (2) if requested by LILCO, the Power Authorities will return to LILCO or destroy all copies of written information furnished by LILCO to LIPA or NYPA.

5.5 LILCO's Right to Electric Generation. If the Shoreham site is used for electric generation, LILCO may at its option purchase any output on the following terms: (a) if produced by non-fossil fuels, at LIPA's, or LIPA's successor's, cost of production or (b) if produced by fossil fuels, LILCO will have the right to make the first offer to purchase such output and LIPA will sell the output to LILCO at the price offered unless a bona fide third party is willing to pay a higher price for such output, in which event LILCO will be given an option to purchase the output at such higher price. As used in this Agreement, cost of production will mean only LIPA's, or LIPA's successor's, out-of-pocket costs and does not include any return on capital.

5.6 Offsets. LILCO is hereby granted as a credit against obligations to LIPA or NYPA (i) any revenues derived from the salvage and sale of any portion of the Assets removed from Shoreham and sold, (ii) the fair market value of any of the Assets removed from Shoreham and used elsewhere (other than in the case of Assets re-transferred pursuant to Section 2.5, in which case such Section will govern) or (iii) the proceeds from any claim against a third party made by LIPA or NYPA relating to Shoreham after the Closing Date.

5.7 Proxy Statement; Shareholder Approval. (a) The Parties will cooperate in the preparation and filing of a preliminary proxy statement with the SEC as soon as practicable after the date of this Agreement. Each Party will respond to the comments of the SEC (if any) and furnish all information required to prepare the Proxy Statement. As soon as practicable after receiving comments from the SEC, the Proxy Statement will be mailed to LILCO's shareholders and, if necessary, amended or supplemental proxy material will be promptly circulated and proxies resolicited. LILCO will make all necessary filings with respect to the Asset Transfer under the Exchange Act and its regulations and any applicable state blue sky or securities laws.

(b) LILCO agrees that: (i) it will call a meeting of its shareholders for the purpose of considering the Settlement; (ii) it will submit this Agreement and the transactions it contemplates at the meeting; and (iii) its Board of Directors will recommend in the Proxy Statement that its shareholders approve this Agreement and the transactions it contemplates. LILCO further agrees that approval of this Agreement and the transactions it contemplates will require the affirmative vote of a majority of the shares of LILCO's Common Stock, $5.00 par value, and Preferred Stock, $100 and $25 par value, present in person or represented by proxy at the meeting, voting together as a single class with holders of Common Stock and $100 Preferred Stock having one vote per share and holders of $25 Preferred Stock having 1/4 vote per share.

5.8 Withdrawal of LIPA Proposals. LIPA will not submit any proposals for the acquisition of LILCO by LIPA prior to the earlier of (i) the Settlement Effective Date, (ii) the termination of this Agreement pursuant to Section 9.1 hereof or (iii) breach, by LILCO, of the agreements contained in Section 5.7 hereof.

5.9 Maintenance of Credit Rating. LILCO will use its best efforts to maintain an investment grade rating on General and Refunding Debt (or the senior outstanding long-term debt when there are no General and Refunding Bonds or First Mortgage Bonds outstanding) throughout the period after the Closing until all Costs Attributable to Shoreham are paid.

5.10 Insurance Premiums. If at any time, a refund of the premium or a portion thereof, or a dividend, is paid on an insurance policy related to Shoreham and whose premium was paid or reimbursed by LILCO, LILCO will be entitled to the refund or dividend. LILCO may, at its option, pay any insurance premium directly, or be designated as a named insured, if LILCO benefits by such direct payment or designation. LILCO will pay insurance premiums directly if (i) requested by LIPA and (ii) such payment will lower Costs Attributable to Shoreham.

5.11 Further Assurances. Each of the Parties agrees to use its best efforts to take all action necessary and proper under the terms and conditions of this Agreement and under applicable law or regulation to consummate the transactions contemplated by this Agreement. In case at any time after the Closing any further action is necessary and proper to carry out the purposes of this Agreement, LILCO and LIPA will so act, including providing NYPA reasonable access to LILCO's offsite training facility, whose use by NYPA will not be inconsistent with LILCO's use of the facility. In the case of any Licenses or Contracts which cannot be effectively assigned to LIPA, LILCO will enter into an appropriate arrangement with LIPA providing LIPA with the benefits of such non-assignable Contracts or Licenses. The Parties will cooperate in obtaining for LIPA benefits of Other Contracts or Other Licenses on terms that will reasonably minimize Costs Attributable to Shoreham.

5.12 Release. If LIPA has identified a bona fide purchaser for all or any portion of the Assets, LILCO will, upon the request of LIPA, take all action necessary to release the liens of the First Mortgage, the General and Refunding Indenture and the Third Mortgage in respect of the Assets to be sold to the extent necessary to consummate the sale; provided, however, that the proceeds from such sale are made available to LILCO in an amount which equals or exceeds the present value of any increase in LILCO debt service attributable to such release; and provided, further, that any remaining proceeds shall be applied, at the direction of the PSC, to moderate directly LILCO's electric rates.

ARTICLE VI

CONDITIONS TO THE OBLIGATIONS OF LILCO

The obligations of LILCO under this Agreement will be subject to the satisfaction at or before the Closing of each of the following conditions, each of which may be waived in writing by LILCO except as otherwise provided by law.

6.1 Truth of Representations and Warranties. The representations and warranties of LIPA contained in this Agreement will be true and correct in all material respects as of June 16, 1988 and April __, 1989. They will be deemed to have been made again at and as of the Closing and will then be true and correct in all material respects except for changes specifically contemplated by this Agreement, and, at the Closing, LIPA will deliver to LILCO a certificate to that effect signed by a duly authorized officer of LIPA.

6.2 Performance by LIPA. Each of the obligations of LIPA to be performed by it on or before the Closing Date pursuant to the terms of this Agreement will have been duly performed in all material respects by the Closing Date. At the Closing, LIPA will deliver to LILCO a certificate to that effect signed by a duly authorized officer of LIPA.

6.3 Shareholder Approval. The approval of the shareholders of LILCO referred to in Section 5.7 will have been obtained.

6.4 Litigation. No preliminary or permanent injunction or other order by any court or administrative agency that prevents the consummation of the Asset Transfer, the License Transfer or the Settlement will remain in effect (each party agreeing to use its best efforts to have any such injunction or order lifted).

6.5 Regulatory Approvals and Consents. The Parties will have received all necessary Regulatory Approvals and Consents, each of which will be in full force and effect as of the Closing.

6.6 Settlement Effective. The Settlement Effective Date will have occurred.

6.7 Other Agreements. LILCO and LIPA will have entered into the Site Agreement and NYPA and LIPA will have entered into an agreement under which NYPA agrees to perform the objections contemplated to be performed by it under this Agreement.

ARTICLE VII

CONDITIONS TO THE OBLIGATIONS OF LIPA

The obligations of LIPA under this Agreement will be subject to the satisfaction at or before the Closing of each of the following conditions, each of which may be waived in writing by LIPA except as provided by law.

7.1 Truth of Representations and Warranties. The representations and warranties of LILCO contained in this Agreement will be true and correct in all material respects as of June 16, 1988 and April __, 1989. They will be deemed to have been made again at and as of the Closing and will then be true and correct in all material respects except for changes specifically contemplated by this Agreement, and at the Closing LILCO will deliver to LIPA a certificate to that effect signed by a duly authorized officer of LILCO.

7.2 Performance by LILCO. Each of the obligations of LILCO to be performed by it on or before the Closing Date pursuant to the terms of this Agreement will have been duly performed in all material respects by the Closing Date. At the Closing, LILCO will deliver to LIPA a certificate to that effect signed by a duly authorized officer of LILCO.

7.3 Shareholder Approval. The approval of the shareholders of LILCO referred to in Section 5.7 will have been obtained.

7.4 Litigation. No preliminary or permanent injunction or other order by any court or administrative agency that prevents the consummation of the Asset Transfer, the License Transfer or the Settlement will remain in effect (each Party agreeing to use its best efforts to have any such injunction or order lifted).

7.5 Regulatory Approvals and Consents. The Parties will have received all necessary Regulatory Approvals and Consents, each of which will be in full force and effect as of the Closing.

7.6 Comparative Rate Determination. Prior to the Settlement Effective Date, the Board of Trustees of LIPA will make the Comparative Rate Determination. Nothing in this Agreement should be construed as an acknowledgement by LILCO of the accuracy or validity of the Comparative Rate Determination.

7.7 Site Agreement. LILCO and LIPA will have entered into the Site Agreement.

7.8 Opinion of Counsel. At Closing, LILCO will provide LIPA with a reasoned opinion of counsel, in form and substance satisfactory to LIPA, that the Asset Transfer, the License Transfer and the decommissioning of Shoreham will not constitute a breach of, or default under, and are not prohibited by, the First Mortgage, the General and Refunding Indenture or the Third Mortgage. In the alternative, if such an opinion cannot be obtained or given by LILCO with respect to one or more of the First Mortgage, the General and Refunding Indenture or the Third Mortgage, LILCO shall transfer the Assets to LIPA free of that mortgage or indenture for which such an opinion can not be obtained.

ARTICLE VIII

SURVIVAL AND INDEMNIFICATION

8.1 Survival of Representations, Warranties and Agreements. The representations, warranties, covenants and agreements of LILCO and LIPA contained in this Agreement will survive the Closing and will expire and terminate six years after the later of the decommissioning of Shoreham or the final disposition of its nuclear fuel; provided, however, LILCO's and LIPA's obligations to indemnify and hold harmless will not terminate at such time with respect to any matter as to which the Indemnified Party has previously made a claim for indemnification.

8.2 Indemnification by LILCO. LILCO agrees to indemnify and hold harmless the Power Authorities against any Costs in connection with any claim, action, suit, proceeding or investigation arising out of or relating to (a) any breach by LILCO of a representation, warranty or agreement under this Agreement, (b) any failure to comply with any "bulk sales" laws applicable to the transactions contemplated by this Agreement and (c) the First Mortgage, the General and Refunding Indenture and the Third Mortgage. LILCO further agrees to waive and relinquish any claim, suit or cause of action it may have against LIPA, and hereby forever releases and discharges LIPA from any potential liability or claim, suit or cause of action LILCO may have in the future, in connection with (a) LIPA's proposal to acquire LILCO and (b) the solicitation of proxies by LIPA or LILCO to elect nominees to

LILCO's Board of Directors and in connection with certain other matters at the 1988 Annual Meeting of LILCO's shareholders.

8.3 Indemnification by LIPA. LIPA agrees to indemnify and hold harmless LILCO against any Costs in connection with any claim, action, suit, proceeding or investigation arising out of or relating to any breach by LIPA of a representation, warranty or agreement under this Agreement. LIPA further agrees to waive and relinquish any claim, suit or cause of action it have may against LILCO, and hereby forever releases and discharges LILCO from any potential liability or claims LIPA may have in the future, in connection with (a) LIPA's proposal to acquire LILCO and (b) the solicitation of proxies by LIPA or LILCO to elect nominees to LILCO's Board of Directors and in connection with certain other matters at the 1988 Annual Meeting of LILCO's shareholders.

8.4 Procedure for Indemnification. (a) If an Indemnified Party receives notice of a Third Party Claim with respect to which an Indemnified Party is entitled to indemnification, the Indemnified Party will give the Indemnifying Party prompt notice thereof after becoming aware of such Third Party Claim. Such notice will describe the Third Party Claim in reasonable detail, and will indicate the amount (estimated if necessary) of the Third Party Claim that has been or may be sustained by the Indemnified Party. Such notice will be a condition precedent to any liability of an Indemnifying Party under the provisions for indemnification contained in this Agreement; provided, however, that the failure to deliver such notice will not affect the indemnification provided hereunder except to the extent that the Indemnifying Party will have been actually and materially prejudiced as a result of such failure. The Indemnifying Party may elect to compromise or defend, at the Indemnifying Party's own expense and by the Indemnifying Party's own counsel, any Third Party Claim. If the Indemnifying Party elects to compromise or defend such Third Party claim, it will within 30 days of receipt of notice of the Third Party Claim (or sooner, if the nature of the Third Party Claim so requires) notify the Indemnified Party of its intent to do so, and the Indemnified Party will cooperate, at the expense of the Indemnifying Party, in the compromise of, or defense against, such Third Party Claim. If the Indemnifying Party elects not to compromise or defend against the Third Party Claim, or fails to notify the Indemnified Party, the Indemnified Party may pay, compromise or defend such Third Party Claim at the Indemnified Party's expense. Notwithstanding the foregoing, neither the Indemnified Party nor the Indemnifying Party may settle or compromise any claim over the objection of the other; provided, however, that consent to settlement of compromise will not be unreasonably withheld. In any event, the Indemnified Party and the Indemnifying Party may each participate, at its own expense, in the defense of such Third Party Claim. If the Indemnifying Party chooses to defend any claim, the Indemnified Party will make available to the Indemnifying Party any personnel or any books, records or documents within its control that are necessary or appropriate for such defense.

(b) Notwithstanding the foregoing, if an offer of settlement or compromise is received by the Indemnifying Party with respect to a Third Party Claim and the Indemnifying Party notifies the Indemnified Party in writing of the Indemnifying Party's willingness to settle or compromise such Third Party Claim on the basis set forth in such notice and the Indemnified Party declines to accept such settlement or compromise, the Indemnified Party may continue to contest such Third Party Claim, free of any participation by the Indemnifying Party, at the Indemnified Party's sole expense. The obligation of the Indemnifying Party to the Indemnified Party with respect to such Third Party Claim will be equal to the lesser of (i) the amount of the offer of settlement or compromise that the Indemnified Party declined to accept plus the costs and expenses of the Indemnified Party prior to the date the Indemnifying Party notifies the Indemnified Party of the offer to settle or compromise and (ii) the amount the Indemnified Party is ultimately obligated to pay as a result of the Indemnified Party's continuing to contest such Third Party Claim, including costs and expenses with respect thereto.

8.5 Remedies Cumulative. The remedies provided in this Article VIII will be cumulative and will not preclude assertion by any party of any other rights or the seeking of any and all other remedies.

8.6 Cooperation. With respect to any claim involving any Party, the other Party will cooperate in all reasonable respects with such Party whether or not such Party has been named as a party to such claim. Such cooperation will include the retention and (upon the other Party's request) the provision to such Party of records and information that are reasonably relevant to such claim, and making employees available on a mutually convenient basis to provide additional information and explanation of any material provided hereunder.

ARTICLE IX

TERMINATION

9.1 Termination. This Agreement may be terminated, and the Asset Transfer abandoned, at any time prior to the Closing Date:

(a) by the mutual consent of the Board of Directors of LILCO and the Board of Trustees of LIPA;

(b) by either LILCO or LIPA if, without fault of the terminating party, the Asset Transfer has not been consummated on or before December 31, 1990;

(c) by either LILCO or LIPA if any court of competent jurisdiction has issued a final decision, not subject to appeal, prohibiting the consummation of the transactions contemplated by this Agreement; or

(d) by either LILCO or LIPA if the PSC does not approve, without modification, the Settlement Agreement and this Agreement; or

(e) by either LILCO or LIPA if LILCO's shareholders disapprove the Settlement Agreement or this Agreement.

Notwithstanding the termination of this Agreement, if the Settlement Effective Date has occurred, (a) the provisions of Article VIII of this Agreement will continue in full force and effect and (b) the convenants contained in Section 5.1 of this Agreement will survive and continue to be fully enforceable.

ARTICLE X

MISCELLANEOUS

10.1 Headings. The descriptive headings of the several Articles and Sections of this Agreement are inserted for convenience only and do not affect the meaning or interpretation of this Agreement.

10.2 Assignment. This Agreement binds and inures to the benefit of the Parties and their respective successors and permitted assigns, but this Agreement may not be assigned by either Party without the prior written consent of the other Party. Notwithstanding the foregoing, LIPA shall have the ability to transfer and assign any or all of its rights, interests or obligations hereunder to any direct or indirect wholly-owned subsidiary of LIPA.

10.3 Modifications, Amendments and Waivers. At any time prior to the Closing Date (notwithstanding any shareholder approval), if authorized by their respective Board of Directors or Board of Trustees, as the case may be, and to the extent permitted by law, (a) the Parties may, by written agreement, modify, amend or supplement any term or provision of this Agreement and (b) any term or provision of this Agreement may be waived by the Party that is entitled to the pertinent benefits. Any written instrument or agreement referred to in this paragraph will be validly and sufficiently authorized for the purposes of this Agreement if signed on behalf of LILCO or LIPA by a person authorized to sign this Agreement.

10.4 Notices. Any notices or other communications required or permitted hereunder shall be sufficiently given if sent by certified or registered mail, postage prepaid, addressed as follows:

(a) If to LIPA, to:

Long Island Power Authority
114 Old Country Road
Suite 204
Mineola, New York 11501
Attention: Chairman of the Board of Trustees

Copy to:

Stanley B. Klimberg, Esq.
Long Island Power Authority
1515 Broadway, 53rd Floor
New York, New York 10036

and a copy to:

Skadden, Arps, Slate, Meagher & Flom
919 Third Avenue
New York, New York 10022
Attention: Edmund C. Duffy, Esq.

(b) If to LILCO, to:

Long Island Lighting Company
175 East Old Country Road
Hicksville, New York 11801
Attention: Chairman of the Board

Copy to:

Victor A. Staffieri, Esq.
Long Island Lighting Company
175 East Old Country Road
Hicksville, New York 11801

and a copy to:

Hunton & Williams
707 E. Main Street
Richmond, Virginia 23212
Attention: W. Taylor Reveley, III, Esq.

or such other address as is furnished in writing by such party, and any such notice or communication will be deemed to have been given as of the date so mailed.

10.5 Specific Performance; Remedies Not Exclusive. LIPA and LILCO acknowledge that the other will not have an adequate remedy at law for money damages in the event that the terms and provisions of this Agreement are not performed and therefore agree that the Parties will be entitled to specific enforcement in addition to any other remedy to which they may be entitled.

10.6 Counterparts. This Agreement may be executed in two or more counterparts all of which will be considered one and the same agreement and each of which will be deemed an original.

10.7 Governing Law. This Agreement will be governed by the laws of the State of New York (regardless of the laws that might be applicable under principles of conflicts of law) as to all matters, including but not limited to matters of validity, construction, effect and performance.

10.8 Severability. If any aspect of this Agreement is held by a court of competent jurisdiction or other authority to be invalid, void, unenforceable or against its regulatory policy, the rest of the Agreement will remain in full force and effect and will in no way be adversely affected.

IN WITNESS WHEREOF, each of the Parties to this Agreement, pursuant to the approval and authority duly given by resolutions adopted by its Board of Directors or Board of Trustees, as the case may be, have executed this Agreement and had it attested or witnessed by a duly authorized officer or trustee, as the case may be.

LONG ISLAND LIGHTING COMPANY

By ______________________________
Chairman of the Board

Attest:

By ______________________
Secretary

LONG ISLAND POWER AUTHORITY

By __________________________________
Chairman of the Board of Trustees

Witness:

By _______________________
Acting Executive Director
and General Counsel

NYBC/PU:Lilcoaspa2

EXHIBIT A
to
Amended and Restated
Asset Transfer Agreement
between
Long Island Lighting Company
and
Long Island Power Authority

FORM OF DEED

THIS INDENTURE, made the ____ day of ______, nineteen hundred and ___ BETWEEN

party of the first part, and

party of the second part,

WITNESSETH, that the party of the first part, in consideration of the premises of the Amended and Restated Asset Transfer Agreement, does hereby remise, release and quitclaim unto the party of the second part, the heirs or successors and assigns of the party of the second part forever,

ALL that certain plot, piece or parcel of land, with the buildings and improvements thereon erected, situate, lying and being in the

RESERVING FROM this conveyance all of the following described

ASSET AGREEMENT
EXHIBIT A
Page 2 of 4

Other Property, together with an exclusive, perpetual easement to run with said Other Property for ingress to and egress from the Other Property at a location designated by the party of the first part [state the manner] across the Property:

[description]

TOGETHER with all right, title and interest, if any, of the party of the first part in and to any streets and roads abutting the above described premises to the center lines thereof; TOGETHER with the appurtenances and all the estate and rights of the party of the first part in and to said premises, except for the reservation described above; TO HAVE AND TO HOLD the premises herein granted unto the party of the second part, the heirs or successors and assigns of the party of the second part forever.

AND the party of the first part, in compliance with Section 13 of the Lien Law, hereby covenants that the party of the first part will receive the consideration for this conveyance and will hold the right to receive such consideration as a trust fund to be applied first for the purpose of paying the cost of the improvement and will apply the same first to the payment of the cost of the improvement before using any part of the total of the same for any other purpose.

ASSET AGREEMENT
EXHIBIT A
Page 3 of 4

The word "party' shall be construed as if it read "parties" whenever the sense of this indenture so requires.

IN WITNESS WHEREOF, the party of the first part has caused this deed to be executed in its name by a duly authorized officer the day and year first above written.

LONG ISLAND LIGHTING COMPANY

By:___________________________

Its:_________________________

IN THE PRESENCE OF:

ASSET AGREEMENT
EXHIBIT A
Page 4 of 4

STATE OF NEW YORK)
) **ss:**
COUNTY OF ____________)

On the ____ day of ______________, 19__, before me personally came ____ to me known, who being by me duly sworn, did depose and say that she/he resides at

____

____

that she/he is the ______________________________________ of ____, the corporation described in and which executed the foregoing instrument; that she/he knows the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the board of directors of said corporation, and that she/he signed her/his name thereto by like order.

My commission expires ____________________.

____
Notary Public

EXHIBIT B
to
Amended and Restated
Asset Transfer Agreement
between
Long Island Lighting Company
and
Long Island Power Authority

FORM OF PERSONALTY TRANSFER AGREEMENT

THIS PERSONALTY TRANSFER AGREEMENT, dated as of _______________, 1989, between LONG ISLAND LIGHTING COMPANY, a New York corporation (LILCO), and LONG ISLAND POWER AUTHORITY, a corporate municipal instrumentality and political subdivision of the State of New York created pursuant to Chapter 517 of the 1986 Laws of New York (LIPA), recites and provides:

RECITALS:

WHEREAS, LIPA and LILCO have executed and delivered an Amended and Restated Asset Transfer Agreement (the "Asset Transfer Agreement"), providing for the transfer of certain assets and rights of LILCO to LIPA upon and subject to certain conditions contained therein; and

WHEREAS, this Personalty Transfer Agreement is given by LILCO to LIPA pursuant to Section 2.4 of the Asset Transfer Agreement (the terms used herein shall have the same meaning as in the Asset Transfer Agreement).

ASSET AGREEMENT
EXHIBIT B
Page 2 of 4

PERSONALTY TRANSFER AGREEMENT:

NOW, THEREFORE, for and in consideration of the premises of Asset Transfer Agreement and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, LILCO hereby grants, bargains, assigns, transfers, sets over and delivers to LIPA all of the right, title and interest of LILCO in and to the personal property, described in Schedule B-1 attached hereto (the Personal Property).

TO HAVE AND TO HOLD, such assets and rights, with all the appurtenances thereto, unto LIPA, its successors and assigns, forever, free and clear of all Liens other than Permitted Liens.

To the extent that the assignment of any claim, contract, license, commitment or any claim or right or any benefit arising thereunder or resulting therefrom to be assigned to LIPA as provided herein shall require the consent of any party thereto, this Personalty Transfer Agreement will not constitute an assignment of the same if any attempted assignment would constitute a breach thereof, and LILCO will cooperate with LIPA to provide for LIPA the benefits under any such claims, contracts, licenses, commitments or any claim or right or any benefit arising thereunder or resulting therefrom, including enforcement, for the benefit of LIPA, of any and all rights of LILCO against the other parties thereto arising out of the breach or cancellation thereof by such other party or otherwise.

LILCO hereby covenants and agrees to sign, execute and deliver, or cause to be signed, executed and delivered, and to do or make or cause to be done or made, upon reasonable request of LIPA, any and all agreements, instruments, papers, deeds, acts or things, supplemental, confirmatory or otherwise, as may be reasonably required by LIPA for the purpose of, or in connection with, acquiring or more effectually vesting in LIPA or evidencing the vesting in LIPA of all of the right, title and interest of LILCO in and to the Personal Property.

Except as otherwise provided in the Asset Transfer Agreement, LILCO MAKES NO WARRANTY, EXPRESS OR IMPLIED, OF MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE AND THE PURCHASER ACCEPTS PERSONAL PROPERTY IN ITS CONDITION "AS IS".

IN WITNESS WHEREOF, LILCO has caused this Asset Transfer Agreement to be executed in its name by a duly authorized officer.

LONG ISLAND LIGHTING
COMPANY, a New York
corporation

By:__________________________

Its: ______________________

ASSET AGREEMENT
EXHIBIT B
Page 4 of 4

STATE OF ________________

_________ of ____________, To-Wit:

The foregoing instrument was acknowledged before me this ____ day of _____________, 19__, by ____________________, as ________________________ of Long Island Lighting Company, a New York corporation, to be the act and deed of the corporation.

My commission expires ________________________.

____
Notary Public

This instrument was prepared by:

____________________________ (Name)

____________________________ (Address)

ASSET AGREEMENT
EXHIBIT C
Page 1 of 2

EXHIBIT C
to
Amended and Restated
Asset Transfer Agreement
by and between
Long Island Lighting Company
and
Long Island Power Authority

THE ASSETS

1. All real and personal property owned by LILCO that is situated within the Fence as shown on the site layout attached as Schedule C-1 hereto and well pump houses also shown on Schedule C-1 hereto, but excepting the property within the Fence excluded from the Assets as Other Property on this Exhibit.

2. An easement along New Beach Road for access to the site.

3. An easement for Parking Area No. 1 (area no. 123 on Schedule C-1 hereto).

4. Such easements for ingress and egress to the Assets over the Other Property as are necessary for LIPA's or NYPA's ownership, possession, maintenance, decommissioning or dismantling of Shoreham. Such access will be consistent with the Site Agreement in a manner that fairly balances the respective business objectives of LIPA and LILCO.

ASSET AGREEMENT
EXHIBIT C
PAGE 2 of 2

THE OTHER PROPERTY

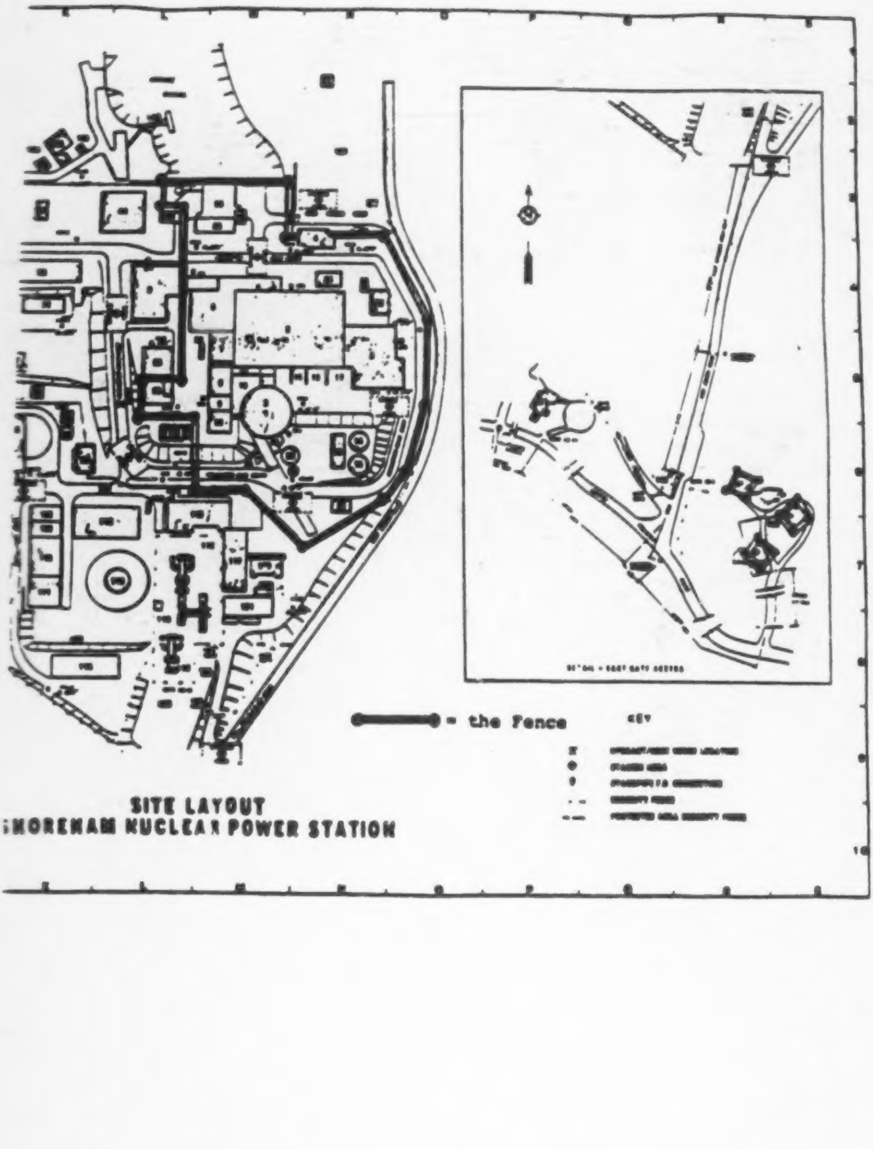
1. All real and personal property owned by LILCO that is situated outside the Fence.

2. All spare parts related to Shoreham. All spare parts will be moved outside of the Fence before the Closing Date or as soon as practicable thereafter.

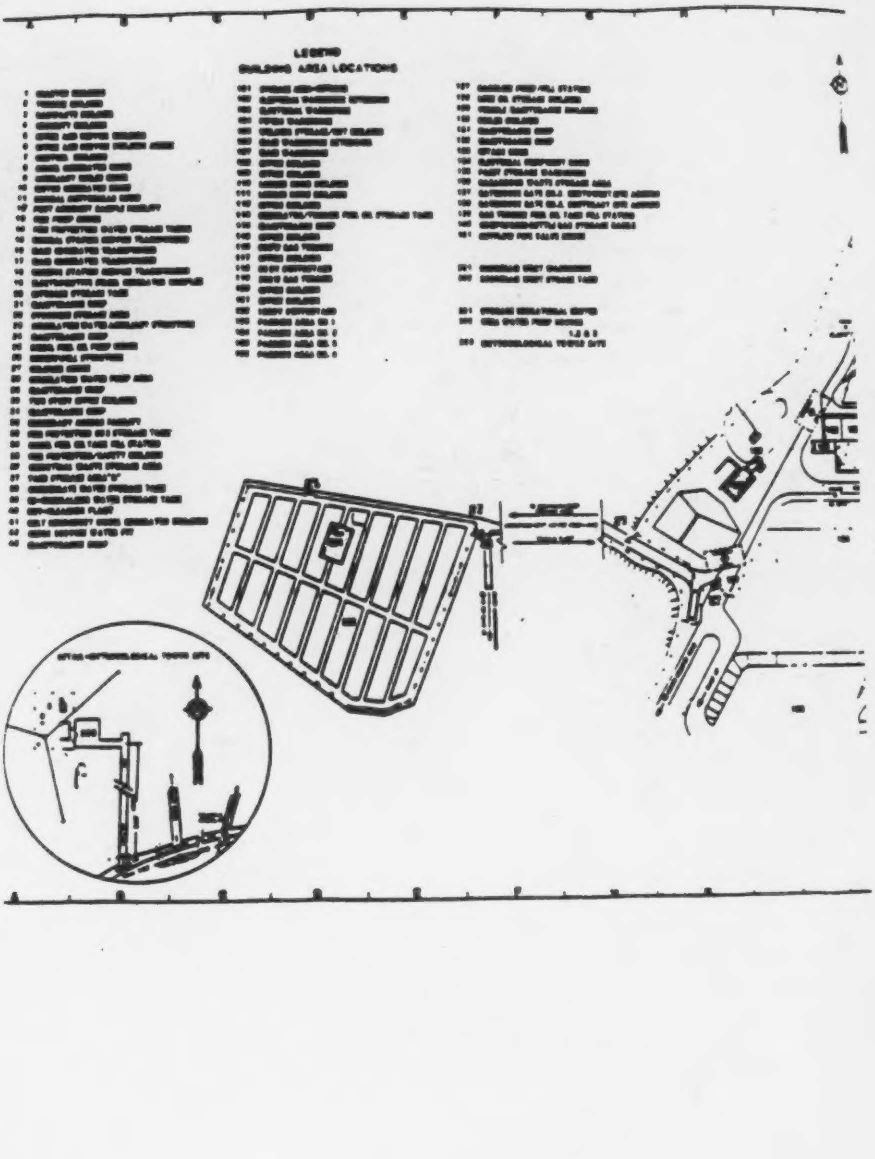
3. The other personal property wherever located listed on Schedule C-2 hereto.

4. Such easements reserved by LILCO for ingress to and egress from the Other Property, including a permanent easement providing access to the Office and Service Building Annex through the Security Building and over the Assets (building no. 4 on Schedule C-1). Such access will be consistent with the Site Agreement in a manner that fairly balances the respective business objectives of LIPA and LILCO.

SCHEDULE C-1


= the Fence
KEY

SITE LAYOUT
SHOREHAM NUCLEAR POWER STATION


LEGEND
BUILDING AREA LOCATIONS

SCHEDULE C-2
Page 1 of 2

OTHER PROPERTY

Clean

Generator Hydrogen Seal Oil System (skid mounted equipment and panels)

Generator Stator Cooling System (skid mounted equipment and panels)

Turbine High Pressure Control Fluid (skid mounted equipment and panels)

Turbine Lube Oil and Turning Gear

Lube Oil Conditioning (skid mounted equipment)

Main Generator Transformers

Reserve Station Supply Transformer

Primary Containment Post LOCA Hydrogen and Oxygen Control (skid mounted equipment and panels)

Source Range Monitoring (drawers)

Intermediate Range Monitoring (drawers)

Local Panel Range Monitoring (drawers)

Average Power Range Monitoring (drawers)

Traversing Incore Probe (TIP) (drawers)

Rod Block Monitor (drawers)

Power Range Reactor Recirculation Flow Units (drawers)

Measuring & Testing Equipment (M&TE)

Spare Parts Inventory

Vehicles/Boats

Star Trec Computer

Security Search Equipment

Miscellaneous tools

Motor Operators (Note 1)

Electrical Breakers (Note 2)

Main Turbine/Generator/Exciter

Contaminated

Control Rod Drive (Drives, Pumps, HCU's)

Feedwater System (Turbines and Pumps)

Reactor Core Isolation Cooling (Skid mounted equipment, pump/turbine)

Nuclear Boiler (Safety-Relief Valves)

High Pressure Coolant Injection (skid mounted equipment, pumps/turbine)

Notes

1. Includes all motor-operators for valves in systems not required for decommissioning or the license.
2. Includes all breakers for components in systems not required for decommissioning or the license.

ASSET AGREEMENT
EXHIBIT D

EXHIBIT D
to
Amended and Restated
Asset Transfer Agreement
by and between
Long Island Lighting Company
and
Long Island Power Authority

CONTRACTS

The following is an inventory of all contracts, leases, commitments, sales orders and other agreements related exclusively to the operation of Shoreham:

[To be completed promptly after the
execution of this Agreement and
updated as of the Closing Date.]

OTHER CONTRACTS

The following is an inventory of all contracts, leases, commitments, sales orders and other agreements that relate (but not exclusively) to Shoreham:

[To be completed promptly after the
execution of this Agreement and
updated as of the Closing Date.]

ASSET AGREEMENT
EXHIBIT E

EXHIBIT E
to
Amended and Restated
Asset Transfer Agreement
by and between
Long Island Lighting Company
and
Long Island Power Authority

LICENSES

The following is an inventory of all licenses, permits and other approvals related exclusively to the operation of Shoreham:

[To be completed promptly after the
execution of this Agreement and
updated as of the Closing Date.]

OTHER LICENSES

The following is an inventory of all licenses, permits and other approvals that relate (but not exclusively) to Shoreham:

[To be completed promptly after the
execution of this Agreement and
updated as of the Closing Date.]

EXHIBIT F
to
Amended and Restated
Asset Transfer Agreement
between
Long Island Lighting Company
and
Long Island Power Authority

FORM OF ASSIGNMENT AGREEMENT

THIS ASSIGNMENT AGREEMENT, dated as of _____________, 1989, between LONG ISLAND LIGHTING COMPANY, a New York corporation (the Assignor), and LONG ISLAND POWER AUTHORITY, a corporate municipal instrumentality and political subdivision of the State of New York created pursuant to Chapter 517 of the 1986 Laws of New York (the Assignee), recites and provides:

RECITALS:

WHEREAS, the Assignor and the Assignee have executed and delivered an Amended and Restated Asset Transfer Agreement (the "Asset Transfer Agreement"), providing for the transfer of certain assets and rights of the Seller to the Purchaser upon and subject to certain conditions contained therein; and

WHEREAS, this Assignment Agreement is given by Assignor to Assignee pursuant to Section 2.4 of the Asset Transfer Agreement (the terms used herein shall have the same meaning as in the Asset Transfer Agreement).

ASSIGNMENT:

NOW, THEREFORE, for and in consideration of the premises of the Asset Transfer Agreement and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Assignor hereby grants, assigns, conveys and sets over unto the Assignee, all of its rights, title and interest in and to the following described intangible personal property (the Personal Property):

TO HAVE AND TO HOLD, such assets and rights, with all the appurtenances thereto, unto the Assignor, its successors and assigns, forever, free and clear of all Liens other than Permitted Liens.

To the extent that the assignment of any claim, contract, license, commitment or any claim or right or any benefit arising thereunder or resulting therefrom to be assigned to the Assignee as provided herein shall require the consent of any party thereto, this Assignment Agreement shall not constitute an assignment of the same if any attempted assignment would constitute a breach thereof, and the Assignor will cooperate with the Assignee to provide for the Assignee the benefits under any such claims, contracts, licenses, commitments or any claim or right or any benefit arising thereunder or resulting therefrom, including enforcement, for the benefit of the Assignee, of any and all rights of the Assignor against the other parties thereto arising out of the breach or cancellation thereof by such other party or otherwise.

[list]

The Assignor hereby covenants and agrees to sign, execute and deliver, or cause to be signed, executed and delivered, and to do or make, or cause to be done or made, upon reasonable request of the Assignee, any and all agreements, instruments, papers, deeds, acts or things, supplemental, confirmatory or otherwise, as may be reasonably required by the Assignee for the purpose of or in connection with acquiring or more effectually vesting in the Assignee all of the right, title and interest of the Assignor in and to the Personal Property.

IN WITNESS WHEREOF, the Assignor has caused this Assignment Agreement to be executed in its name by a duly authorized officer.

LONG ISLAND LIGHTING
COMPANY, a New York
corporation

By:____________________________

Its: ________________________

ASSET AGREEMENT
EXHIBIT F
Page 4 of 4

STATE OF ________________

_________ of ____________, To-Wit:

The foregoing instrument was acknowledged before me this ____ day of ____________, 1989, by ____________________, as ________________________ of Long Island Lighting Company, a New York corporation, to be the act and deed of the corporation.

My commission expires ________________________.

____
Notary Public

This instrument was prepared by:

____________________________ (Name)

____________________________ (Address)

EXHIBIT G
to
Amended and Restated
Asset Transfer Agreement
by and between
Long Island Lighting Company
and
Long Island Power Authority

CONSENTS

The following is an inventory of all consents and approvals necessary for the consummation of the transactions contemplated by this Agreement as of the date of execution of the Agreement:

[To be completed promptly after the
execution of this Agreement and
updated as of the Closing Date.]

ASSET AGREEMENT
EXHIBIT H

EXHIBIT H
to
Amended and Restated Asset Transfer Agreement
by and between
Long Island Lighting Company
and
Long Island Power Authority

INSURANCE

The following is an inventory of all material insurance policies covering Shoreham and that are in full force and effect:

[To be completed promptly after the execution
of this Agreement and updated
as of the Closing Date.]

ASSET AGREEMENT
EXHIBIT I

EXHIBIT I
to
Amended and Restated
Asset Transfer Agreement
by and between
Long Island Lighting Company
and
Long Island Power Authority

REAL PROPERTY

The following is an inventory of each parcel of real property owned by LILCO that constitutes Shoreham, including the legal description of each owned parcel:

[To be completed promptly after the execution
of this Agreement.]

ASSET AGREEMENT
EXHIBIT J

EXHIBIT J
to
Amended and Restated
Asset Transfer Agreement
by and between
Long Island Lighting Company
and
Long Island Power Authority

REQUESTS

The following is a description of any material outstanding requirements, recommendations, or requests from any insurance company, the Board of Fire Underwriters or any mortgagee or any governmental or quasi-governmental agency proposing any repairs or work to be done at Shoreham:

[To be completed promptly after the
execution of this Agreement and
updated as of the Closing Date]

ASSET AGREEMENT
EXHIBIT K
Page 1 of 2

EXHIBIT K
to
Amended and Restated
Asset Transfer Agreement
by and between
Long Island Lighting Company
and
Long Island Power Authority

RECORDS AND DOCUMENTS FOR SHOREHAM

All books and records that are reasonably necessary for the ownership, operation, possession or decommissioning of Shoreham, including, but not limited to, the following:

1. All records required to be maintained by ANSI N454.2.9-1974.
2. All records required to be maintained by the plant Technical Specifications.
3. All Quality Assurance and Quality Control records and documents.
4. The plant Master Equipment List(s).
5. All safety analysis documents.
6. Design basis documentation and drawings.
7. All plant procedures.

8. All security, radiation protection, health physics and effluent records.

9. Any other normal operating documentation such as auxiliary operator log books, station journals and special test reports.

10. ASME Certification Records.

11. Nuclear materials records, e.g., Parts 30, 50 & 70 licenses.

But including the following only to the extent required to meet NRC requirements:

1. All correspondence between LILCO and nuclear insurance companies, regulatory agencies, nuclear steam supply system supplier, architect engineers, vendors and other contractors providing any services relating to the Shoreham plant.

2. All correspondence related to various industry owners groups such as INPO, EPRI, PIMS and BWROG.

COPY - Original sent to Buffalo, NY
03/21/89

APPENDIX C

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

March 21, 1989

James T. McFarland, Commissioner
State of New York Public Service Commission
Ellicott Square Building
295 Main Street
Room 814
Buffalo, N.Y. 14203

Dear Commissioner McFarland:

Your letters of March 7 and March 9, 1989, to Chairman Zech informed the Nuclear Regulatory Commission that a hearing will be held by the New York State Public Service Commission to consider approval of the agreement between the Long Island Lighting Company (LILCO) and the Long Island Power Authority (LIPA) to transfer the Shoreham nuclear plant to LIPA. Your letter of March 9, 1989 requested that the NRC provide a staff member to testify at the PSC hearing concerning the safety of the Shoreham facility.

As you may know the NRC is presently in the process of finalizing its licensing determination concerning authorizing the Shoreham facility to operate at power levels higher than the presently authorized 5% of full power. The timing of the PSC hearing is such that we are not able to respond to your request for an NRC Staff witness. However, we are enclosing, under separate cover, copies of the NRC Staff Safety Evaluation Report, NUREG 0420 and its nine Supplements which address all safety issues associated with operation of the Shoreham facility. The NRC has held extensive adjudicatory hearings on issues placed in contention by the parties to the licensing proceeding. The NRC Atomic Safety and Licensing Boards and the Atomic Safety and Licensing Appeal Boards have determined that the facility can be operated without endangering public health and safety with respect to the safety issues raised in these proceedings.

The Nuclear Regulatory Commission has not yet completed its review of the issues not decided in the formal adjudication. The NRC staff's determination and recommendations will be presented to the Commission in a public meeting. The State of New York will be informed of the time and place of such public meeting.

Although the NRC staff has not yet completed review of certain remaining emergency planning matters, the Federal Emergency Management Agency has completed its review of emergency planning and the 1988 emergency planning exercise for the Shoreham facility and has reached a finding of reasonable assurance (that emergency plans are adequate and that there is reasonable assurance that they can be implemented). Enclosed are a copy of the FEMA report dated September 9, 1988 and a copy of FEMA's March 17, 1989 report on certain LILCO responses to prior FEMA comments.

While we are not able to provide the witness you requested, I hope that the enclosed information will be sufficient to make clear to the PSC the thorough evaluation of the safety of the Shoreham nuclear power facility carried out by the NRC.

Your letter of March 7, 1989 also raised a number of questions concerning the NRC licensing process and the potential effects of the proposed agreement between New York State and Long Island Lighting Company concerning the Shoreham facility.

1. "Does the NRC have to approve any transfer of ownership? Assuming Shoreham is licensed?"

   Sec. 101 of the Atomic Energy Act of 1954, as amended, requires a license from NRC in order for any person to "...transfer, acquire, possess, use..." a nuclear facility. Accordingly, any transfer of the Shoreham facility from the Long Island Lighting Company to any other person (legal entity) requires license approval from the NRC both for LILCO to transfer and for the transferee to acquire, possess, or use the facility. Ordinarily such approval would be reflected in a single amendment to the outstanding license. The obligation for NRC licensing approval is true under the present licensing status (authorized to operate not in excess of 5% of full power) and would not be changed by the issuance by NRC of a license authorizing higher power operation.

2. "On the basis of the foregoing [description of LIPA in your letter], could you tell whether there is any likelihood LIPA could be granted a license to decommission the Shoreham nuclear plant?"

   Activities involved in operating or decommissioning the plant would require technical expertise in safe operation of nuclear facilities and in the safe handling of radioactive materials. If an organization without prior nuclear experience were to request a license to operate or to undertake decommissioning of Shoreham, the NRC would have to be satisfied that the organization has obtained sufficient technical expertise to safely carry out the licensed activities, is properly organized to safely control such operation, and has provided a quality assurance program which satisfies the NRC's strict standards.

   At this stage we can make no judgement about what qualifications and technical resources LIPA might be able to marshal in connection with any application it may file for an NRC license.

3. Your letter noted that the New York Power Authority already holds a license to operate the Fitzpatrick plant and Indian Point Unit 3. You asked whether if "LIPA would not be eligible to own the Shoreham plant for decommissioning purposes, would NYPA be so eligible?"

The same basic standards discussed above under items 1 and 2 would apply to a transfer of Shoreham to NYPA. The NRC would have to determine that the proposed activities would be carried out safely in compliance with Commission regulations. However, since the NRC is already familiar with the technical and managerial competence of NYPA, the NRC staff may be able to complete its review of these matters more expeditiously than in the case of an organization with no prior nuclear experience.

4. "Is it possible for LILCO, if it gets an operating license to move to change the license from an operating license to a permit to decommission the plant and/or store nuclear fuel?"

   It is possible for LILCO to request that its operating license be modified to start decommissioning activities at any time that LILCO determines that it intends to permanently cease operation. That would not be changed by the issuance by the NRC of a license authorizing operation at a higher power level.

5. You also asked whether "this chain of events" will prevent the NRC from granting LILCO a license?

   It is not clear from your letter, which of the "events" postulated in your letter you mean. Nonetheless, LILCO may obtain an NRC license authorizing operation at a higher power level, up to full power, upon a determination by the NRC that LILCO has satisfied the NRC's licensing requirements. If LILCO no longer qualifies for a license to operate the plant because it has transferred the plant to another person, that could affect NRC licensing. However, if LILCO continues to possess (and own) the facility, as presently reflected in the current operating license and the license application (for a full power license), and satisfies applicable Commission regulations, LILCO would continue to qualify for a Commission operating license, including a license authorizing operation at a higher power level, up to full power.

Sincerely,

Victor Stello

Victor Stello, Jr.
Executive Director for Operations

1633 Broadway
New York, New York 10019
212 468.6061

New York Power Authority

Richard M. Flynn
Chairman

May 1, 1989

Honorable J. Bennett Johnston
Chairman
United States Senate
Committee on Energy and
  Natural Resources
Washington, D.C. 20510-5150

Dear Senator Johnston:

Thank you for inviting me to testify before the Committee on Energy and Natural Resources on April 13, 1989 concerning supply and demand for electricity in the northeastern United States during the next decade. I was pleased to give you the New York Power Authority's perspective on these issues.

As you requested in your letter of April 18, 1989, I am submitting the answers to questions which we received from you and Senator McClure for the printed hearing record.

If you have any comments or further questions on the enclosed, or any other matters, please let us know.

Very truly yours,

Richard M. Flynn

enc.

5/01/89

JOHNSTON QUESTIONS

Q1. The Cuomo settlement requires the transfer of the Shoreham license from LILCO to the Long Island Power Authority for the purposes of decommissioning. Under the agreement, the decommissioning would be carried out under contract by the New York Power Authority. This transfer of the license will require the approval of the Nuclear Regulatory Commission. The PSC's rate moderation agreement assumes that this transfer will take place by June 1, 1989. What inquiries have been made of the NRC as to how this process would be carried out?

A1. The Power Authority has not made express inquiries of the NRC concerning the method of transferring the Long Island Lighting Company's (LILCO) license for Shoreham to the Long Island Power Authority (LIPA). The Authority, however, both through its own staff and consultants, have made inquiries concerning the NRC license transfers generally and reviewed those that might be pertinent to the unique circumstances presented by this case. These inquiries, and the Power Authority's own experience concerning the transfers of the FitzPatrick and Indian Point 3 Plants' licenses, provide a reasonable basis for planning for the LILCO-LIPA license transfer.

It is not, in any event, contemplated by the Power Authority that the license transfer will occur by June 1, 1989. The LILCO shareholders' meeting, the last event required for the settlement to become effective, may well occur after June 1st because of delays imposed by the need to secure the Securities and Exchange Commission approval of the proxy material for the meeting. Thus, it is possible that all the requisite approvals to the settlement becoming effective will not be obtained before June 1st. The parties to the Asset Transfer Agreement have set December 31, 1990 as the deadline for completing the license transfer.

Q. What level of confidence do you have that NRC would grant approval for transfer of the license to the Long Island Power Authority?

A. The license transfer from LILCO to LIPA for the purpose of decommissioning Shoreham will be unique. Nevertheless, the Power Authority has a high level of confidence that our technical qualifications coupled with the financial support provided by LILCO and based on other license transfers approved by the NRC, meet the criteria set forth by the NRC for such a license transfer.

Q. Does the Long Island Power Authority possess sufficient expertise to carry out decommissioning of the plant?

A. LIPA will rely on the Power Authority for the technical expertise to carry out the decommissioning of Shoreham. The Power Authority operates two nuclear power plants, one of which is very similar to Shoreham. The Power Authority expects that it will act as a general contractor for LIPA on this project. As such, the Power Authority will provide the expert supervision to accomplish LIPA's stated objective of expeditiously decommissioning Shoreham.

Q. What contingencies have been made in case NRC determines that Long Island Power Authority is not sufficiently qualified to be granted the license?

A. While the Asset Transfer Agreement provides for transfer of Shoreham assets to an entity designated by LIPA in the event LIPA is not capable of effecting the license transfer, the Agreement does not state who that entity might be.

Q. Are you familiar with when any similar transfer of a license has been approved by NRC? How similar were the circumstances of the transfer to what will be requested in this case? Do you know how long it took for NRC to approve the transfer?

A. The NRC has never been faced with a situation involving transfer of both ownership and control of a licensed plant to a different corporate entity for purposes of decommissioning. However, the NRC has approved transfers of operating licenses to give new entities responsibility for operation of a plant. These cases have involved transfers to affiliates.

In 1986, the NRC approved a license amendment application authorizing the owners of the Wolf Creek Generating Station to transfer operating responsibility from Kansas Gas and Electric (one of the co-owners and the original licensed operator) to the Wolf Creek Nuclear Operating Corporation (WCNOP). WCNOP was a new corporation established by the Wolf Creek owners. In this case, there was no change in plant ownership and the plant continues to operate. NRC approval of the license amendment took almost seven months.

Similarly, in 1986 the NRC approved a license amendment and transfer for the Grand Gulf Nuclear Station. In this case, the original operator was Mississippi Power and Light Company (MP&L), a wholly owned subsidiary of Middle South Utilities (MSU) with no ownership interest in the plant. The NRC authorized a transfer of operating responsibility for Unit 1, and construction responsibility for Unit 2, from MP&L to one of the co-owners, System Energy Resources, Inc. (SERI). SERI, formerly Middle South Energy, Inc., is also a wholly owned subsidiary of MSU. As with the Wolf Creek case, ownership of the nuclear plant did not change. In this case the NRC approval process lasted approximately 3-1/2 months.

Finally, the NRC currently has pending license amendment/transfer applications for Arkansas Nuclear One and Waterford Steam Electric Station, Unit 3. Under these proposals, already approved in concept by the NRC Staff, the owners of the plants would transfer operating responsibility (but not ownership) to SERI. These authorizations were applied for in July 1988, but are presently on hold at the request of the licensees.

The NRC has also approved changes in plant ownership on numerous occasions where responsibility for operating the plant is unaffected. These cases have usually involved the addition or deletion of one or more co-owner. Similarly, the NRC has approved corporate reorganizations of owners of an operating plant. For example, in January 1988 the NRC consented to a reorganization of Wisconsin Power and Light Company (WP&L) -- a co-owner, but not operator of the Kewaunee Nuclear Plant -- involving creation of WPL Holdings, Inc. Under the reorganization, WPL Holdings assumed ownership of the common stock of WP&L. However, while these cases do involved changes in ownership of the nuclear plant, they do not involve changes in the entity authorized to possess and use the facility as would the present Shoreham transaction.

Q. Would the New York Power Authority be willing to have the license transferred to it, for purposes of decommissioning the plant? Why or why not?

A. No. The Power Authority's statute (N.Y. Public Authorities Law Section 1000 et seq.) does not authorize it to acquire nuclear power plants for the purpose of decommissioning them.

Q2. What type of new generation will be built by New York Power Authority and on what schedule? What level of confidence do you have that this can be accomplished on a reasonable schedule?

A2. The Power Authority has entered into a memorandum of understanding with LILCO that provides that if requested by LILCO, the Power Authority would construct up to three baseload units for round-the-clock operation at LILCO's request. The three units are expected to be scheduled for completion in 1997, 1999, and 2001, respectively. Each of these baseload units are expected to be approximately 300 megawatts. Although the siting process for the plans has not been initiated, the plants will most likely be fossil-fueled combined-cycle units.

We believe that the licensing and construction of these units could be accomplished on a reasonable schedule. We have an excellent, long-standing track record for building needed energy facilities in New York State.

Q3. Under the memorandum of understanding between the New York Power Authority and LILCO, any generating capacity built for LILCO would be on a take or pay basis. What is the rationale for the take or pay basis? How will this affect the cost to ratepayers?

A3. The Public Service Commission will require LILCO to proceed with competitive bidding (under the decision in Case 29409, Opinion 85-15, June 3, 1988) as an initial approach to acquiring new capacity. The memorandum of understanding between the Power Authority and LILCO will provide an alternative means for the acquisition of the new capacity if the competitive bidding procedure is not successful.

Under the conditions set forth in the MOU between the Power Authority and LILCO, LILCO would reimburse the Power Authority for the costs of financing and building the new plants and producing the electricity. The Power Authority's obligations for building the plants are conditioned on a variety of factors, including New York State Public Service Commission approval of LILCO's project recovery costs through its rates for each of the projects. LILCO will pass the potential savings on to its customers by providing the electricity to its customers at cost.

SENATOR MCCLURE QUESTIONS:

Q1. I have read NYPA's charter, which lays out rather precisely the powers and duties of the New York Power Authority. In view of the fact that Shoreham is a perfectly useful and needed source of power, do you feel comfortable in taking on the responsibility of decontaminating and decommissioning the plant? If you do not see this as part of your charter, wouldn't you have to decline the request by LIPA? Don't you at least have under your charter the obligation to see that this plant is preserved in a mothballed status in case its power is needed at some point in time?

A1. The Power Authority did not, nor was it required to make a judgment on the policy issues involved in the decommissioning of Shoreham. The decision between mothballing or prompt dismantlement of Shoreham has been made by the State's Executive branch and the people and elected officials of Long Island.

The Power Authority, because of its considerable experience with nuclear operations, was asked and agreed to help in the decommissioning process. The

Power Authority is to provide that assistance through a contractual arrangement with LIPA, an arrangement authorized by the New York Public Authorities Law.

Q2. It will be your responsibility to provide replacement power to make up for the abandonment of Shoreham. What replacement capacity do you have planned so far? How difficult is it to obtain approval for the siting of any kind of new generating capacity on Long Island?

A2. The Public Service Commission will require LILCO to proceed with competitive bidding (under the decision in Case 29409, Opinion 85-15, June 3, 1988) as an initial approach to acquiring new capacity. In the event that the competitive bidding procedure is not successful, under the conditions set forth in the memorandum of understanding (MOU) between the Power Authority and LILCO, LILCO could contract with the Power Authority to construct up to three baseload generation units (up to 900 megawatts) for round-the-clock operation by LILCO.

The three units are expected to be scheduled for completion in 1997, 1999, and 2001, respectively. Each of these baseload units are expected to be approximately 300 megawatts. Although the siting process for the plans has not been initiated, the plants are expected to be fossil-fueled combined-cycle units.

While Power Authority has no previous experience regarding the construction of a generating facility on Long Island, we believe that the licensing and construction of these units could be accomplished on a reasonable schedule.

We are accustomed to accomplishing difficult tasks in a timely fashion. As I mentioned in my prepared statement before the Committee, the Power Authority is scheduled to begin construction on a new transmission line which will provide Long Islanders with access to additional sources of electricity next month. Licensing for this project was completed on schedule, and the construction of the line is being expedited such that the line is expected to be in service in the spring of 1991, almost one year earlier than the original in-service date.

APPENDIX II

Additional Material Submitted for the Record

Long Island Association, Inc.
80 Hauppauge Road
Commack, Long Island, NY 11725
516-499-4400

LIA
LONG ISLAND ASSOCIATION

TESTIMONY

OF THE

LONG ISLAND ASSOCIATION

BEFORE

UNITED STATES SENATE

ENERGY AND NATURAL RESOURCES COMMITTEE

April 13, 1989

The Long Island Association is the region's largest business and civic organization, representing most of the major employers on the Island as well as thousands of small businesses. We also number several hundred not-for-profit organizations and groups within our ranks.

The concerns we express as members of the business community are also expressed in our roles as residents of Long Island. We conduct our business here, but we also live here and we are involved in every aspect of Long Island life.

The problems facing Long Island in resolving the multifaceted issues presented by the controversy involving the Long Island Lighting Company (LILCO) and its nuclear plant at Shoreham are the product of several interrelated factors, including:

1. The long-term failure of LILCO to efficiently design and manage the construction of the Shoreham nuclear facility in a timely and cost-effective manner;

2. Reduction of public confidence in the nuclear industry flowing from a variety of factors, including high costs, notorious

accidents (Three Mile Island and Chernobyl), and failure of the industry nationally to live up to earlier projections concerning cost, reliability and efficiency;

3. Erosion in the level of public, political, and governmental confidence in the company necessary to the successsful operation of a public utility;

4. The resulting response, often heated and inflamatory, of the political and governmental process in addressing legitimate public concerns flowing from these circumstances; and,

5. Confusing and contradictory changes in governmental policy and regulatory requirements at the federal, state and local levels in adding and revising construction requirements and in withdrawing previously-granted state and local recognition and sanction of the Shoreham plant, including the refusal to participate in emergency planning.

The Long Island Association and the business and civic community at large are as weary of the seemingly endless controversy as any other party. We have been deeply concerned about the cloud of uncertainty which hangs over our electric supply system, but also about the economic impacts of that uncertainty and the prolonged preoccupation of the governmental and political processes with the issue. For these reasons, LIA was among those who early on urged an effort at negotiating a settlement of the long-standing controversy, rather than litigating each and every aspect to its conclusion. We believed that establishing an improved level of certainty in the power supply system was urgently needed so that business and economic decision-making could proceed in an intelligent manner. Unfortunately, the negotiated plans which have emerged have produced the wrong kind of certainty. All that is certain under last year's plan and this is that electric energy rates will increase every year for the next decade by at least 4 1/2 to 5 percent per year.

Under the plan, the supply picture is characterized by uncertainty concerning power to replace Shoreham and power to meet expanding need. Decommissioning and dismantling costs are virtually open-ended, and, therefore, are not certain either.

Because the plan does not produce the level of certainty on key concerns necesary to continued economic health in the region, it cannot be supported.

There are several concerns about the new settlement as proposed:

a) As with Settlement I, virtually the entire cost of the new proposed settlement will fall on ratepayers. All of the cash in support of the settlement will come, through one device or another, from the ratepayers of Long Island. The State of New York, which officially recognized and sanctioned the Shoreham plant through 1983 (in the case of the Executive Branch) and 1987 (in the case of the Public Service Commission), will not participate in any meaningful way in bearing any of the costs of the resolution made necessary in large part by changes in state policy. Nor does the New York Power

Authority or the Long Island Power Authority contribute to the settlement. Their costs--whatever they may turn out to be--in decommissioning Shoreham and in providing replacement and additional power will be passed along and paid for entirely by Long Island ratepayers.

b) There remains since last year a sense that the company and its shareholders will not carry an appropriate share of the burden of the settlement. Indeed, there is a strong feeling that the company and its shareholders and creditors do quite well in the plan; they can and should shoulder more of the burden. In Wall Street's own words, LILCO becomes a "cash-rich utility" under the anticipated rate plan.

c) While the PSC has not yet adopted a controlling rate plan in furtherance of the new settlement plan, it is expected that the Commission, which both participated in the development of and approved last year's rate plan, will approve a multi-year rate plan similar to that of last year's settlement.

It is expected that the plan approved by PSC will provide for a minimum of ten annual rate increases, with the first three increases set out by order and subsequent increases established as "targets". If last year's pattern is followed, the fuel adjustment and purchase power features of the rate plan would not operate in the traditional way; that is, rates would not be permitted to float up or down automatically to reflect actual costs above or below approved rates. Rather, there would be increased rates above the annual rate increases envisioned in the plan if fuel costs rise, but corresponding cost decreases would not necessarily result in rate decreases. This could result in windfalls to the company if fuel and purchase power costs go down in the future.

d) The rate plan is expected to provide that ratepayers will underwrite the payment of taxes by the company relating to the Shoreham plant to the Shoreham-Wading River School District, the Town of Brookhaven, and Suffolk County on a declining rate over the next ten years. The total costs of the payments is estimated to be $330 million or more and, if this figure is capitalized and amortized over forty years, as reported by the company, the cash impact would be raised to $921 million for ratepayers. While the negative impact on the tax base in closing Shoreham in the affected jurisdictions is understood, there is concern that ratepayers in school districts throughout the Island, already struggling with significant tax issues themselves, will in effect be providing a subsidy for a distant school district's tax base under the plan.

e) Last year's plan contemplated a substantial tax write-off of federal income taxes in the amount of $2.5 billion. Following release of the plan, however, this feature was subsequently described as not significant. It is not now known what value to ratepayers, if any, this feature holds.

f) The suit by the County of Suffolk and others under the Racketeering Influenced Corruption Organization (RICO) statute is not fully resolved at this point. Should the remaining phases of the litigation result in any significant increased liability to the company for payments, this could adversely impact any rate plan and result in significant additional rate impacts for all ratepayers; significantly increased liability to the company could result in the bankruptcy of the company. At the same time, challenges by the Company of property tax assessments associated with Shoreham are still not settled. Should the Company succeed, the Company might enjoy the benefit of a reduced tax burden and may recover funds. However, taxpayers (who are also ratepayers) of the jurisdictions could be directly affected as their governments find themselves in deficit because of the payments necessary. Lack of final resolution of the tax cases and the RICO suit leaves a significant cloud over any rate plan.

g) As with last year's settlement, the expected rate plan in the new settlement may not adequately cover the costs of the base load capacity needed to replace Shoreham power and to provide for base load expansion to meet further growth. Failure to cover all of the costs of up to 1380 megawatts of new power could impact on the expected rate plan so as to understate the actual future costs and rates facing the people of Long Island.

Limited success in siting "peaking" gas turbines shows that locating sites for large, polluting "thermal plants" may be impossible. If political history is any guide, it is unlikely that any of the new base load "thermal" plants identified in the settlement plan will ever be successfully sited and built on the Island.

h) The prospective role to be played by the New York Power

Authority in helping meet Long Island energy needs is a welcome one and one that should not necessarily turn on this or any other specific settlement plan. The state's obligation to help Long Island meet its energy needs does not exist only under the settlement plan; rather it exists in any case.

(i) There is still concern about the full "take or pay" provisions of the NYPA/LILCO agreement. Under the plan, all of the risks of the financing and construction of new facilities will be passed directly through to LILCO, and therefore to LILCO ratepayers. There is no option to reject NYPA power if it is too costly. This is contrary to good practice since the PSC will not have any opportunity to determine which of the costs associated with new facilities are actually "prudent" and thus eligible to be passed on to ratepayers. LILCO will be required literally to take or pay for any new NYPA power.

(j) Both settlement I and settlement II proceeded on the assumption that Shoreham must close, whatever the cost to ratepayers. However, mothballing was not considered to be a viable or politically acceptable option. Prudence would suggest thoughtful consideration of preserving rather than destroying the plant. No objective comparison and analysis of mothballing alternatives has ever been provided. It is officially estimated that decommissioning will cost $339 million, and this will be paid for over a forty year amortization schedule (with a cash impact of $927 million or more to ratepayers). It is not known what the real cost will be as decommissioning on this scale has never been attempted and all of the costs, whatever they are, will be passed through, dollar-for-dollar, to ratepayers. It is not known how these decommissioning costs compare to various possible mothballing scenarios, or how rates would be computed if actual decommissioning costs exceed the current estimate, which many observers consider likely. Decommissioning costs are apparently open-ended, with no cap.

(k) The public has never been asked by the governmental and political process to directly express itself on the question of whether Shoreham should operate or not. Nor has the public been asked about mothballing. The political and governmental process assumes it knows the public mind on the matter but has declined to survey the people of Long Island directly. As with last year's settlement, there can be no harm in asking, especially now that the public knows in much greater detail the economic and supply consequences of closing Shoreham. For the first time, Long Islanders can see that paying for Shoreham three times over (construction, destruction, replacement) will be very costly. They are now in a position to make an informed judgement on the matter.

CONCLUSION AND RECOMMENDATIONS

The proposed settlement will have impacts on the economic health of Long Island over the next four decades and beyond, and comes forward at a time when Long Island is struggling to remain competitive with other states and regions. Under the plan, Long Island will have the highest electric energy rates in the contiguous forty-eight states well into the next century and there will be substantial questions about the adequacy of supply. This settlement plan is a plan to close Shoreham, with all other issues of cost, supply, reliability and economic impact treated as subordinate or secondary.

The Long Island Association cannot sanction the proposed plan as presented. As with the original plan, this plan is too costly to ratepayers; does not fairly allocate and balance the burdens of the settlement among all the parties responsible for the current situation; does not take into full account contigencies which could have a major impact on the proposed rates; does not adequately cover the costs or address the siting difficulties of meeting Long Island's electric needs without Shoreham; and has not been the subject of sufficient public deliberation and review.

The Association makes the following recommendations to address its concerns relating to electric energy supply, cost, and due process in the consideration of the settlement agreement.

1. The state, LILCO, and NYPA should present a siting plan for projected new base-load power plants. The new settlement plan provides no concrete proposals for the siting of new power plants on Long Island. All parties apparently agree that new plants will be necessary to insure electric power reliability, and yet no provisions are made to carry out the proposals. The people of Long Island should know when, where, and what type of plants will be necessary to replace Shoreham and meet increased demand before any action on the settlement is taken. With history as a guide, there is fear that none of the plants will ever be built. A specific plan would allay such fears.

2. Take no irreversible action until the NRC, which is the only agency with full power to act in the matter, renders its decision on the application for a Shoreham license. NRC is reported to be just a short time away from making a decision, after more than fifteen years of process, making Shoreham the most thoroughly considered plant in the history of the Commission. Allowing the process to be completed can assist decision-makers and Long Island residents in making their final judgement on the plant. With only days remaining, what harm could there be in having the benefit of an NRC decision before acting?

3. Redistribute the burdens and costs of the settlement.

a) Defer, reduce, or eliminate the payment of all or part of the accrued dividends to preferred shareholders. Full payback of accrued dividends to preferred shareholders may not be necessary for the company to establish investment grade ratings. There are indications that the investment community would accept something less than payment of all preferred dividends.

b) Defer or reduce the payment of common stock dividends. It is not necessary that there be guaranteed common stock dividends projected three years forward. A deferral or reduction in such payments will not harm the company's attempt to reach financial security.

c) Provide for direct state participation in meeting the costs of the plan through reductions in the gross receipts tax and other state taxes. The Governor's reported intention to offer a bill reducing any windfall based on rate increases is a welcome one which will benefit ratepayers directly. This is consistent with the Association's recommendations of last year. Details of the Governor's proposal should be made known and the legislature should act before a settlement rate plan is adopted.

d) Investigate a plan for issuing common stock to ratepayers to provide real restitutional value for the RICO settlement. The still-incomplete RICO litigation leaves major potential liabilities over the company. An alternative to a settlement in the form of prospective reductions of expected future rate increases may be found in the issuance by the company of common stock to ratepayers. This concept was developed in testimony in the RICO fairness hearings when the class witness, Charles Komanoff, agreed that such a device would not impact on rates; would represent real value to ratepayers; and would not impact on the companies financial health.

e) Increase the tax-exempt financing available to LILCO. During the discussions of last year's settlement, the possibility of significantly increasing the amount of tax exempt financing to be made available to LILCO through NYSERDA was raised. The state should maximize the availability of such financing to reduce costs to ratepayers. The Governor's reported intention to offer such a bill is welcome and is consistent with the Association's recommendations of last year.

4. Provide for resolution of all tax certiorari cases before a rate plan is approved. The still-unresolved tax certiorari cases can impact on the rate plan significantly, depending on their outcome. Just as an unforseen judgement in the RICO case demonstrated the inadvisability of trying to determine a rate plan while the case was outstanding, so too it is impossible to project future rate needs adequately in the face of the unresolved tax suits. Resolution of the tax suits should be a condition precedent to any multi-year rate plan so that ratepayers do not remain vulnerable to adverse impacts or adverse decisions in these cases.

5. Modifications must be made to allow ratepayers to take advantage of any downward trend in the fuel adjustment clause and to require LILCO and NYPA to share any additional costs relating to the

provisions of future power which will be provided.

6. Increase the time period for PSC action on the settlement and the related rate plan. There is an unseemly haste surrounding the PSC process and the Commission may be violating its own rules for due process and fair play. The April 5th PSC deadline and the April 15th deadline for various other approvals is an arbitrary and artificial one; no interested parties have agreed to the time frame. Indeed, no other parties were consulted.

A typical PSC rate case is considered over an eleven to twelve month period; the new rate plan was submitted to PSC on March 10th and response was required by March 17th. The PSC staff proposal was only placed in the public domain on the 17th. Public hearings were held on March 22nd and 23rd. PSC approved the plan on April 5th. This extraordinary rush to judgement by the PSC will do nothing to engender public confidence in the result.

7. Conduct a public referendum on Shoreham and on the settlement plan. It is time to ask the people of Long Island directly whether they want Shoreham operated, mothballed, converted, or destroyed. For the first time, it is now possible for people to fully understand the economic and supply consequences of each of the alternatives. They have seen the rate plans and know the costs of the current proposal to abandon, dismantle, and replace Shoreham. They should now be given the opportunity to tell the political and governmental process whether they will accept such a plan. The Association's own survey indicates that people feel very strongly on the subject and have informed themselves about the issues.

A referendum can be conducted quickly and cheaply. Ballots to each ratepayer in the form of "bill-stuffers" could be returned to an independent certified public accounting firm for tabulation. The Association would be prepared to help underwrite costs of the referendum.

We have attempted, in the unreasonably compressed time period available, to examine the settlement plan and the rate proposals of the company, the state, the CPB, the PSC staff and others. While the exceedingly short time frame has not permitted fully detailed analysis, based on what we have seen, we find that the settlement is not in the public interest. The rate plan which flows from the settlement will do serious, continuing damage to the Long Island economy.

On the record presented, the plan is unacceptable. It will cost the ratepayers of Long Island billions of dollars with no offsetting benefit, and will not assure a reliable supply of electric energy.

Last year the Association urged a negotiated settlement to produce certainty and provide a secure and achievable plan for meeting Long Island's electric energy needs. But the settlement put forward then, and revived now, failed on both points. It did not then and does not now provide for an equitable sharing of the burdens of abandoning Shoreham between the ratepayers and shareholders; and it does not provide a realistic plan for alternative power production on a scale necessary to sustain the region's economy.

The Nuclear Regulatory Commission is the only agency with full jurisdiction and expertise to deal with all of the interrelated issues of technology, science, safety and economics associated with Shoreham, should instead be permitted to proceed to the conclusion of its processes for consideration of a license for Shorheam. The NRC has conducted the lengthiest and most complete process in its history in connection with this plant. Every person and party with an interest has had ample opportunity over many years to present their views and be heard. Let NRC do its job.

Proponents of this settlement have not met their burden of proof that the economic consequences of abandoning and destroying the plant can be made manageable. They have failed to develop a viable program and plan for additional capacity for the region. They have failed to show how requiring ratepayers to pay for Shoreham three times over (once to build it; once to destroy it; and once to replace it) is in the public interest.

Accordingly, the settlement plan and rate scheme should be set aside.

Grumman Corporation
Bethpage, New York 11714-3580

John O'Brien
Chairman of the Board
and President

April 11, 1989

Honorable J. Bennett Johnston
Chairman
Committee on Energy and Natural Resources
United States Senate
Washington, DC 20515

Dear Senator Johnston:

Grumman opposes dismantling the Shoreham Nuclear Power Plant. Grumman believes the plant should be "mothballed" in case of an unexpected power crisis on Long Island.

I have attached a copy of a formal statement describing our position for you and members of the Senate Energy and Natural Resources Committee on the occasion of the Committee hearings on Electric Power Supplies in the Northeast.

Sincerely,

John O'Brien

John O'Brien

JOB/mp

GRUMMAN POSITION
SHOREHAM NUCLEAR POWER PLANT

Grumman believes that the Shoreham nuclear power plant should not be destroyed. Uncertainities about meeting future power demands on Long Island argue for mothballing the plant as an insurance policy against potential shortages.

All electricity on Long Island is produced by burning fossil fuels. There are no coal-burning plants. Furthermore 90% of the oil that is burned is imported. This ties electric production for the 3 million Long Island residents and businesses directly to the vagaries of foreign oil producers.

At the present time it is impossible to import more electricity from Canada or upstate New York because of a lack of transmission capacity. A new line is under construction but is not expected to be complete for another 2 years. Upon completion some Canadian hydropower will be available but only on an interruptible basis. The Quebec system has already experienced 3 blackouts in 1988. Recent drought conditions add additional uncertainities to hydropower imports.

Last summer LILCO operated at a fantastic 96% efficiency. Nationally utilities operate at an average of 65% efficiency. Over the past several years LILCO has focused its resources on completing Shoreham, deferring maintenance and replacement of its conventional facilities. Further, winter peak demands have prevented the equipment downtime required for seasonal maintenance. It is unreasonable to expect LILCO to continue to perform at 96% efficiency, especially during peak summer demand.

Last year Grumman was called upon to shut down manufacturing and computer facilities on 5 separate occasions because of power shortages. This winter we have already been called upon to shed load on two occasions, and the peak summer months are yet to come.

If Shoreham is destroyed Long Island residents will have paid for the facility three times over: once to build it, once to destroy it and a third time to replace it with a fossil-fueled generator.

The dangers of pollution from coal burning plants is well known. Natural gas fired plants are less dangerous but there are insufficient supplies of natural gas on Long Island to make this a viable choice for the near term.

Finally, recent scientific warnings of the dangers of global warming dramatize the danger of burning fossil fuels.

Industries on Long Island are now competing with industries around the country that pay substantially less for electricity. The average residential customer on Long Island pays 13 1/2¢/kwh. The average industrial user on Long Island pays 8 1/2¢/kwh. The national average industrial user is 5 1/2¢/kwh. The destruction of the Shoreham nuclear power plant represents a loss of $5.2B capital investment to the Long Island economy without even considering a replacement.

It may not be possible to open Shoreham today because of political positions or public perception of the risks involved. But we should not rush head-long into destroying the plant. Shoreham is a valuable national energy asset. Prudence dictates that Shoreham should, at the very least, be mothballed as insurance against future shortages and to be available when improved nuclear technologies are developed.

Senator J. Bennett Johnston
Chairman
United States Senate
Committee on Energy and Natural Resources

Dirksen Senate Office Building
Room 364
First and Constitution Avenue NE
Washington, D.C. 20510

Testimony submitted on Thursday, April 12, 1989
by
Dr. Richard C. Strand [phone:(516)282-3732]
Citizens for an Orderly Energy Policy, Inc. (COEP)
Post Office Box 71
Patchogue, Long Island, New York 11772.

This testimony is respectfully submitted by Richard C. Strand, Ph. D., on behalf of Citizens for an Orderly Energy Policy, Inc. (COEP). COEP is a not-for-profit corporation formed for the purpose of promoting a rational energy policy for Long Island, New York. Its members are mostly scientists, engineers, and physicians who volunteer their time and expertise as a public service. None of its members is associated with either the electric utility or nuclear power industry.

A major part of our activity consists of providing information to the public. To that end we have compiled three reports, copies of which are submitted herewith for inclusion in the record of this hearing. One report deals with nuclear safety issues, particularly as they pertain to the Shoreham power plant; the second with the Chernobyl accident; and the third with the electric energy supply situation on Long Island. A summary of the principal conclusions and recommendations of each of the reports may be found below.

The public has been badly misled by anti-nuclear zealots on many issues pertaining to the utilization of nuclear power. Specifically, it is widely believed that the Shoreham plant poses an unreasonable risk, that small doses of radiation are injurious, that all of Long Island would have to be evacuated in the event of an accident at Shoreham, and that Shoreham's generating capacity is not needed. As amply documented in our reports, none of these beliefs is true.

Our members, along with an overwhelming majority of scientists and other experts, are convinced that it is in the interests of the people of Long Island, New York State, and the United States that Shoreham operate. Our efforts to convince the public and its elected representatives in New York that this is true have been unavailing. We urge that this committee seek a means to bring about the operation of Shoreham so that this valuable national resource will not be lost.

Shoreham: Fiction and Fact

Two fictions have prevailed in the headlines and in the public imagination on Long Island during the prolonged controversy over the opening of the Shoreham Nuclear Power Station. They are that nuclear power in general and Shoreham in particular poses a major health risk and that it would be more costly to operate Shoreham than to decommission it.

The facts are that the operation of Shoreham would enhance public health on Long Island and that even with the escalation of costs due to the long delay caused by the opposition, on a true economic accounting Shoreham's operation represents a least cost path for Long Island's electric rate payers.

In order to share these facts with the public, three years ago a group of sixteen scientists employed at Brookhaven National Laboratory and whose expertise included the fields of high energy physics, nuclear physics, nuclear chemistry, nuclear safeguards, medicine, biology, radiation protection and emergency planning, authored the "Shoreham Safety Report".

In the foreword to the report we said:

"We have reviewed the plant's safety, design, construction and management and have carefully considered the need for electricity. We are convinced that Shoreham can operate safely and economically, and we think it is unfortunate that our position as scientists in the debate over the plant has gone largely unheard."

As a result of our studies, we concluded that:

1. "The Shoreham plant is well-constructed safe and ready to begin generating electricity."

Shoreham has been subject to more intensive review, both by the NRC and by independent consultants than any other nuclear plant in the US. They have commented faverably on its design, construction, quality assurance program, management and emergency preparedness.

2. " The Shoreham site is completely satisfactory as a location for a nuclear power plant."

The population in the ten mile circle surrounding the Shoreham site is low compared to many other nuclear power plant locations in the US. On the half circle to the north are the open waters of Long Island Sound, on the east mostly farming areas. The southeast through southwest include many large open areas including the Calverton National Cemetery, the Grumann Calverton airport, a 2,500 acre state park and the 5,265 acre Brookhaven Lab site and a state park on the former RCA transmitter site. Only 39,000 persons were resident within five miles of Shoreham in 1985.

3. "The plant's management and operating staff are fully qualified to operate the plant."

In 1985, Shoreham's then new management team had nearly 1,100 combined years in nuclear reactor operations. Since that time they have successfully completed low-power testing and have kept Shoreham in a state of operational readiness.

4. "There are no geographic, population or other technical barriers to emergency planning for Shoreham."

There are no peculiar geographic barriers within the 10 mile emergency planning zone. Is is well served by a network of local, county, and state roads including two dual-lane north south highways. The nearest population centers are at the fringe of the EPZ. No one has claimed that emergency planning zones outside of 10 miles is needed for the two active Indian Point nuclear plants that are closer to 70 percent of Long Island's population than Shoreham.

5. "In the unlikely event that it became needed, Shoreham's emergency plan is workable."

In order to compensate for Suffolk County's and New York state's patently politically motivated withdrawl in 1982 from emergency planning for Shoreham, LILCO has developed it's own off-site emergency plan. This plan assigned responsibility for about 50 functions to an independent organization of 2,200 utility employees, the Local Emergency Response Organization (LERO). It has received an overall favorable rating from FEMA in two emergency exercises conducted in 1986 and 1988.

6. "The electrical output from Shoreham is sorely needed to reduce our dependence on unreliable foreign oil and to assure adequate supplies of electricity for Long Island residents and businesses.

With the recent growth rates of 4% per year in electrical demand on Long Island, our 1986 prediction of increasing shortages without Shoreham is being confirmed. Replacement power from off Long Island is restricted by the availability of long distance transmission lines and cannot be assured at time of peak demand both in the winter and summer.

7. "Further delay in operating the plant or its decommissioning would be unnecessary costly and against the public's best interest."

Shoreham is ready to begin generating base-load electricity, enough to meet almost one-third of Long Island's requirements. It's operation would reduce Long Island's dependence on imported oil by 7,000,000 barrels a year, or a savings in the current US trade deficit of about $200,000,000 per year.

A true gimmick-free accounting, taking all costs into consideration, including the cost of new plants to replace Shoreham's capacity, leads to the conclusion that electrical rates on Long Island will increase more if Shoreham does not go into operation that if it does. This would be even more so if Shoreham were allocated the same tax-exempt advantages that are embedded in Gov. Cuomo's deal to close Shoreham.

In fact, studies conducted by Gov. Cuomo's Commission, Cooper and Lybrand (hired by the Long Island Association) and the Hudson Institute (hired by LILCO) indicate that with Shoreham's operation, ratepayers and taxpayers on Long Island would save between 12 and 16 billion dollars over the projected 30 year life time of the plant.

Today we would add to our report that even if acceptable sites can be found for them, to build additional fossil fueled plants on Long Island to replace Shoreham flies in the face of a growing national concern for their environmental consequences. Nuclear power has a much smaller environmental impact, does not result in acid-rain, and noes not add to the greenhouse effect.

On all counts, safety, cost and the environment, the proposals to abandon and replace Shoreham, just as it is ready to generate sorely needed electricity can only be justifies by artificial, short-range, political considerations. They are blind to the long run enterest of the local citizenry and to the national interest in a balanced energy policy and the reduction of air pollution.

SHOREMAN IS URGENTLY NEEDED

The studies that our organization have made show conclusively that the generating capacity of Shoreham is urgently needed at the present time to avoid voltage reductions and/or blackouts on Long Island. For the past three years the power available to Long Island has been inadequate for meeting summer peak power demands. Not only has LILCO been unable to maintain a prudent reserve but on many occasions voltage reductions have been necessary, and several major business and industrial customers have been forced to partially close down.

The difficulty in meeting the summer peak was expressed very eloquently by LILCO in its April 14, 1987 petition to the NRC for a temporary license to operate at 25 percent power. William Museler, LILCO's vice president of electric operations stated: "Last year LILCO was barely able to keep pace with the record breaking demand -- and that was during a relatively cool summer. With Long Island's continued growth, we must concentrate on supplying enough electricity for our community this summer and we need an additional source of power. The electricity generated by Shoreham's operation will help meet the increased demand[1]".

In the two years that have followed the crisis has become even more acute. Without Shoreham it is almost certain that Long Island will experience devastating blackouts this year.

LILCO supplies electricity to approximately 2.6 million people living in Nassau and Suffolk Counties. Because of the strong economic activity in the bi-county area during the past several years, the demand for electricity has been increasing at a faster rate than most forecasts had predicted. The rates of increase were as follows:

YEARS FROM - TO	INCREASE IN PEAK POWER (percent)	INCREASE IN KWH SALES (percent)	INCREASE IN BUSINESS CUSTOMERS (percent)
1985 - 1986	1.8	4.3	2.9
1986 - 1987	3.9	4.5	4.5
1987 - 1988	6.9	5.0 (est.)	4.5

It should be noted that there has been a steady growth in the annual electric energy sales (kwh per year) as well as in the peak power demand.

LILCO's total generating capability is 3842 MW of which 1111 MW consists of peaking units (diesel and gas turbine). Many of the units, designed to operate only a few hundred hours per year to provide peaking power, have been forced to operate in a base-load mode -- a very expensive way to generate bulk electricity. Without Shoreham, LILCO's base-load generating capacity is 2731 MW distributed among 13 oil-fired steam plants. Most of these units are of ancient vintage -- seven are more than 30 years old, all but two are more than 20 years old. Thus LILCO is not only short of total capacity for meeting peak power demands but the existing mix of units is not a reasonable economic match to the base-load demand, and a large fraction of the backbone capacity is approaching obsolesence. It will take at least 15 years to plan, license and construct a newbase-load steam plant which will be needed to replace the Shoreham capacity. Such a plant would have to be coal-fired.

LILCO depends on importing power from the New York Power Pool in order to meet a substantial fraction of its base-load and peak demand. Although the company has contracts for 646 MW of "firm" power from upstate New York, the existing transmission lines cannot deliver that much power. The primary interconnection (Y-50) has a capacity of 567 MW, but LILCO's share is only 309 MW -- the balance belonging to Consolidated Edison of New York (Con Ed). When Con Ed doesn't need its full share, LILCO can use the surplus, but unfortunately each year the surplus gets smaller. (The peak demand for Con Ed usually comes at the same time as the peak demand for LILCO). A second 100 MW transmission line runs under Long Island Sound and connects with the New England Power Exchange at Norwalk, Connecticut. Unfortunately, this interconnection is of no value during periods of peak demand because of transmission limitations at each end. For these reasons the maximum help that Long Island can count on from outside sources during periods of peak demand is only 309 MW.

There are plans to add an additional interconnection between Long Island and upstate New York. However, sections of this transmission line are being vigorously opposed by people living near the proposed right-of-way. Therefore the completion date for such an interconnection is uncertain.

When LILCO's in-house capacity (3842 MW) is added to its reliable import capability (309 MW) the total is less than the projected 1989 summer demand (3885 MW) plus the prudent 18% reserve (699 MW):

Capability: 3842 + 309 = 4151 MW
Projected Demand: 3885 + 699 = 4584 MW

Without Shoreham very soon, Long Island is in trouble! The situation only gets worse in subsequent years.

Additional data are summarized in a paper attached hereto, which was presented two weeks ago at a symposium of the Health Physics Society by one of my colleagues.[2]

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[1] LILCO news release, "NRC Petitioned to Increase Shoreham Power for Summer Energy Crisis on L.I.", April 14, 1987.

[2] Vance L. Sailor, "Is Shoreham Needed?", presented at the March 31, 1989 Symposium of the Greater New York Chapter of the Health Physics Society.

IS SHOREHAM NEEDED?*

Vance L. Sailor

1. THE IMPORTANCE OF FORECASTING GROWTH IN DEMAND FOR ELECTRICITY.

One of the reasons we are meeting here today is to examine the question of whether Long Island faces electrical shortages and needs (or soon will need) the generating capacity of the Shoreham Plant. This, of course, involves forecasting the demand for electricity that will be experienced in the months and years ahead.

It is important that our utilities and regulatory authorities do the best possible long-range forecasting job for two major reasons:

- 1st. Even if the utility is lucky enough to enjoy a climate of cooperation with the local politicians, it will still take 10 to 15 years to plan, license and build a new major generating facility; and
- 2nd. If the planning has been inadequate, i.e., if the time arrives when the system capability can't meet the demand, service disruptions are inevitable.

Service disruptions are costly and dangerous. Reliability of the electrical supply is vital to our modern society.

2. FACTORS AFFECTING GROWTH IN DEMAND FOR ELECTRICITY.

Among the factors that cause short- and/or long-term changes in the demand for electricity are demographic trends, economic conditions, changes in lifestyle, and, of course, the weather. None of these factors are easy to forecast, but there are also large uncertainties that cannot be quantified -- unanticipated disruptive events. Examples are the OPEC oil boycott, the TMI accident, major political surprises, etc.

If high precision forecasting is not possible, what can be done? Historically, the philosophy has been that it is less costly to society to overestimate rather than underestimate.

The consumption of electricity undergoes daily and seasonal cycles. Figure 1 shows a typical weekly load curve. There are several components to the demand: an around-the-clock load (indicated by the cross hatching), a substantial weekday usage that is fairly constant from day to day (in white), and some sharp peaks (in black). The ratios of peaks to valleys depends on the mix of customers among industry, commercial and residential.

At any time of the day or night, a utility will send out the cheapest electricity that is available either from within its own system or from the power-pool grid. The cost calculations go on almost continously. Generating units are shut down or started up according to the least-cost solution for meeting the instantaneous demand.

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*Presented at the March 31, 1989 Symposium of the Greater New York Chapter of the Health Physics Society.

The units which generate the bulk of the power -- those that are cheapest to operate -- are called base-loaded plants. These are steam-turbine plants. In most systems these are the newer coal-fired or nuclear plants. Older and less efficient steam plants are turned on and off to meet the intermediate needs -- the part of the broad peak just above the valleys. And finally, the most expensive units to operate are turned on just a few hours a week to meet the sharp peaks.

The peaking units are usually internal combustion engines, either diesel or gas turbines (similar to aircraft jet engines). Such units are relatively cheap to build, but extremely expensive to run. They burn high quality fuel and require a lot of maintenance.

There are several criteria that can be used for evaluating whether or not an electrical supply is adequate:

1. Can the peak demand be met under all plausible circurmstances?
2. Is the fuel supply secure?
3. Do the existing and planned generating stations provide a reliable and efficient match to the load characteristics?

3.0. IS THE SUPPLY CAPABILITY ON LONG ISLAND ADEQUATE?

Let us now examine the situation on Long Island in terms of these three criteria.

3.1 Can Peak Demands Be Met?

3.1.1. Trends in Peak Demand: In this part of the country the peak demand comes in the afternoon and evening of hot summer days. Some summers are hotter than others, so the peak varies somewhat from year to year. Figure 2 shows the LILCO system load curve for two summer days. The solid curve, July 7, 1986, was the maxium peak load for that year. But the peak in 1987 came on August 17 and was 3576 MW -- off scale on this graph.

One thing that impresses me about these curves is that the peak seems to be lasting later into the night than was the case 20 years ago. There are more air-conditioners and people use them later into the night.

In addition to the weather factor, the peak demand is affected by changes in the population, and by various economic factors. In times of economic recession the peak demand tends to decrease.

Some of effects can be seen in Figure 3 which shows the actual variation in LILCO's peak demand from 1965 through 1988. From 1965 until 1973, there was a sharp increase in peak demand resulting from a combination of population increase coupled with vigorous economic growth. Then in 1973 came the OPEC increase in oil prices followed by an economic recession. The higher oil prices increased the cost of electricity. The plateau in peak demand that lasted from 1973 until 1985 can be attributed to a combination of consumer thrift, reduced economic activity in the area, and conservation.

3.1.2. Projected Peak Demands, 1989 - 1995: Figure 3 shows the projected peak power demand for the next six years. This is the LILCO forecast. The lower curve assumes an effective "demand side management" (DSM) program, the upper curve does not. The New York State Energy Office forecasts with and without DSM are similar but slightly lower. It should be noted that for the last several years the peak demands would have been higher except for previous interruptible supply agreements with several major customers. Thus the historical curve is lower (by about 50 MW) than it would have been had not several industries and large institutions agreed to curtail some of their activities on power alert days.

Both LILCO and the State expect the peak demand to be about 3900 MW in 1989 and to increase to somewhere between 4000 and 4300 MW by 1995. The numbers are shown in Table 1. The New York Power Pool requires 18 percent minimum reserve, which adds 702 MW to the 1989 peak requirement, i.e., a total of 4602. By 1995 with the 18 percent reserve the requirement could be as high as 5085.8 (4310 + 775.8).

3.1.3. LILCO Peak Power Supply Capability: In the summer of 1989 LILCO will have a generating capability of 3975 MW and firm import agreements for 646 MW for a total of 4631. This would be enough to meet the projected peak load with the required 18% reserve for the coming summer, if all goes well.

But there are some big uncertainties. Both of these assume that 100 percent of everything is running at full capacity, and that three additional gas turbine peaking units under construction are completed on schedule. For the past few years, LILCO has made a special effort to have all of its generating units in top operating condition for the summer. They have been extraordinarily successful in these preparations. Last summer their unit availability factor was about 95%, which is truly remarkable. Unfortunately, it will become more and more difficult to maintain this outstanding record because so many of their plants are approaching obsolesence and hence more subject to breakdown.

There are also problems with the purchased power. In general LILCO buys all of the power it can from the New York Power Pool and the New England Power Exchange. At most times the purchased power costs less than the fuel required to run the LILCO plants. This power must come to Long Island over transmission lines that have limited capacity.

Long Island has two major interconnections with the outside world for importing power. The Y-50 interconnection links the Con ED substation at Dunwoodie with LILCO's Shore Road Substation. LILCO's share of this line is 309 MW. If Con Ed doesn't need its 258 MW share at some given moment. LILCO can draw the surplus -- but you can't depend on this.

The second interconnection is under Long Island Sound from Northport to Norwalk, Ct. This tie has a 100 MW capacity, but when the power stations at either end of the line are running at full capacity, it can not deliver any power to LILCO because the transmission lines leaving the Northport Plant have no spare capacity. In effect this 100 MW line helps improve reliability and enhance economics during non-peak periods.

Thus until more transmission lines have been built, we must regard the maximum import capability to be about 309 MW during periods of peak demand.

When the projected supply and demand data are compared. it's difficult to be optimistic about LILCO's capability of meeting the summer power peaks this year and in the next few years. The data are summarized in Table 1.

3.2. Is the Fuel Supply Secure?

In 1987, about 82% of LILCO's electric energy generation used imported oil. Among major utilities, LILCO ranks number 1 in oil dependence. This excessive reliance on a single fuel that is subject to disruption by the actions of foreign powers has long been a matter of concern by responsible public authorities. The fuel supply is not secure.

3.3. Do Existing and Planned Generating Stations Provide a Reliable and Efficient Match to the Load Characteristics?

There are several deficiencies in the generating facilities available to Long Island, which threaten the reliability of the electrical supply and add to its cost.

Most of LILCO's steam-electric plants are quite old. These are the backbone of the supply. Table 2 lists the capacity and age of each of the units. As a plant gets older things wear out, its reliability drops and maintenance costs increase. Forty years has generally been taken as the practical limit for the age of a power plant.

It's pretty sobering to realize that if LILCO started today to plan, license and construct a new steam-electric plant, it would take 15 years to get it on-line and begin to replace these obsolete units. Thus, we must add about 15 years to ages of these plants before any replacements can be expected.

It must be emphasized that the internal combustion units -- diesel and gas turbine engines -- are no substitute for the base load steam units. They are too expensive to operate and maintain. Almost a third of LILCO's existing capacity and all of its announced additions consist of these peaking units. This is not an efficient or cost effective way to generate electricity to supply the bulk of the load.

We must conclude that the existing and planned generating facilities cannot be considered reliable because of their age, and that the type of units is not an efficient match to the load.

4.0. CONCLUSIONS

On the basis of the data that I have just presented, I must conclude that without the Shoreham Nuclear Power Station, the supply of electricity to Long Island is inadequate and will continue to be inadequate for at least the next 15 years. It fails all three major criteria:

Can the peak demand be satisfied under all plausible circumstances? No.

Is the fuel supply secure? No.

Is there now or will there soon be a reliable and efficient mix of generating capacity? No.

Long Island needs the base-load capacity that Shoreham can provide. Shoreham is needed now and will continue to be needed for a long time into the future.

No substitutes for Shoreham are in sight!

TYPICAL WEEKLY LOAD CURVE

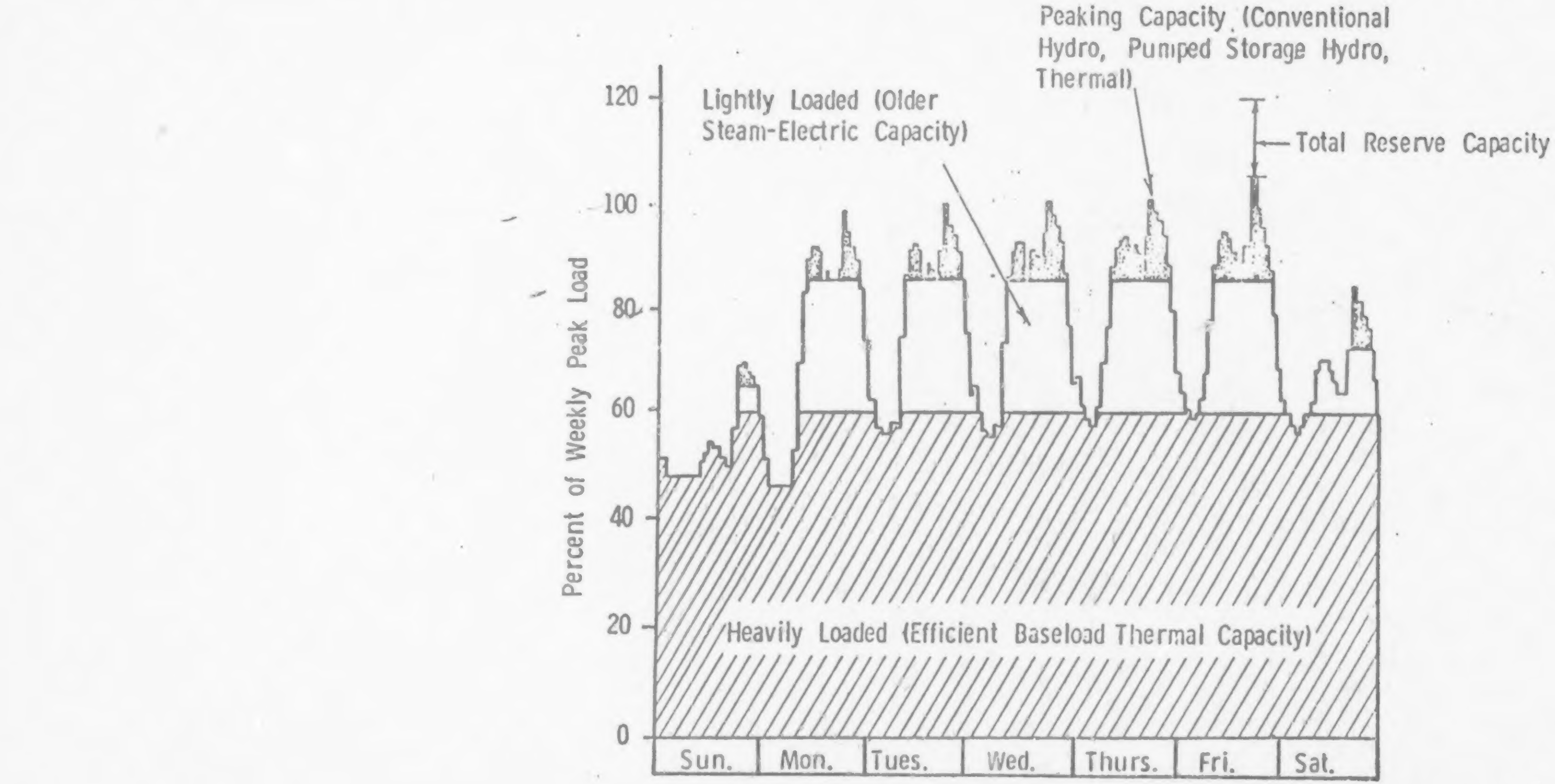

Figure 1

LOAD COMPARISON
JUNE 1, 1987 VS. 1986 PEAK (JULY 7, 1986)
LONG ISLAND LIGHTING COMPANY

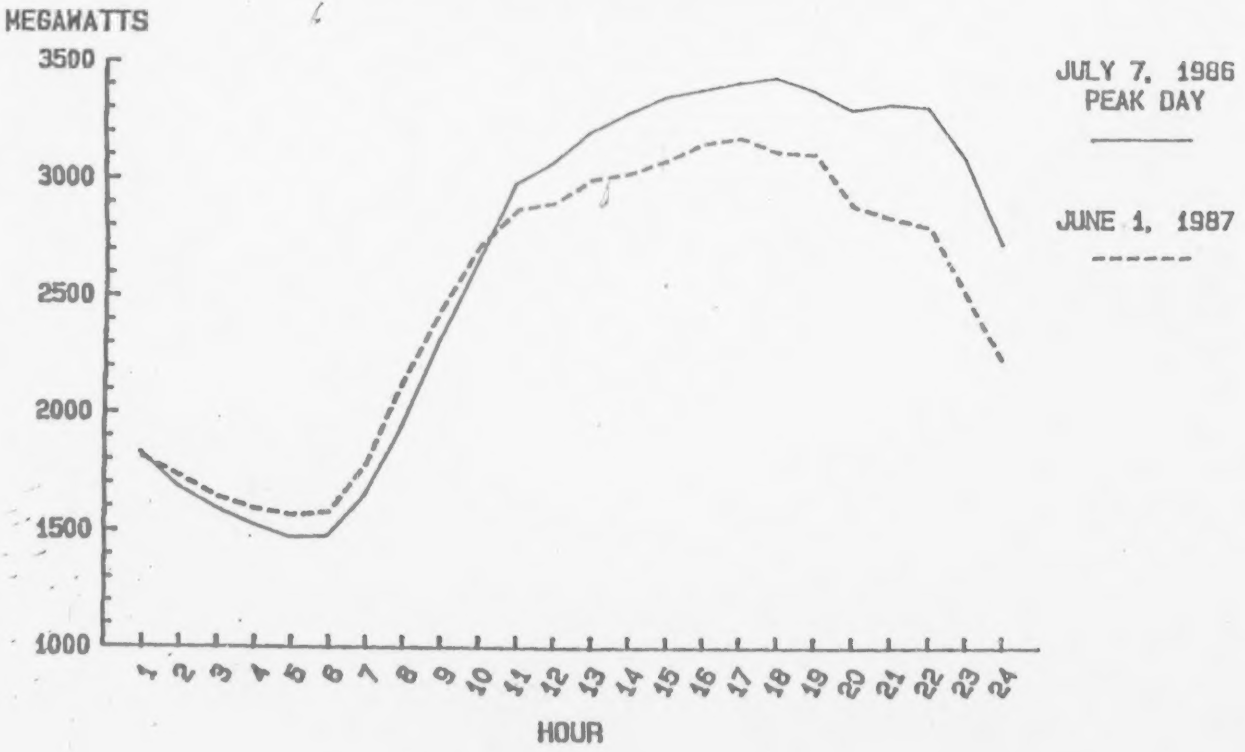

FIGURE 2

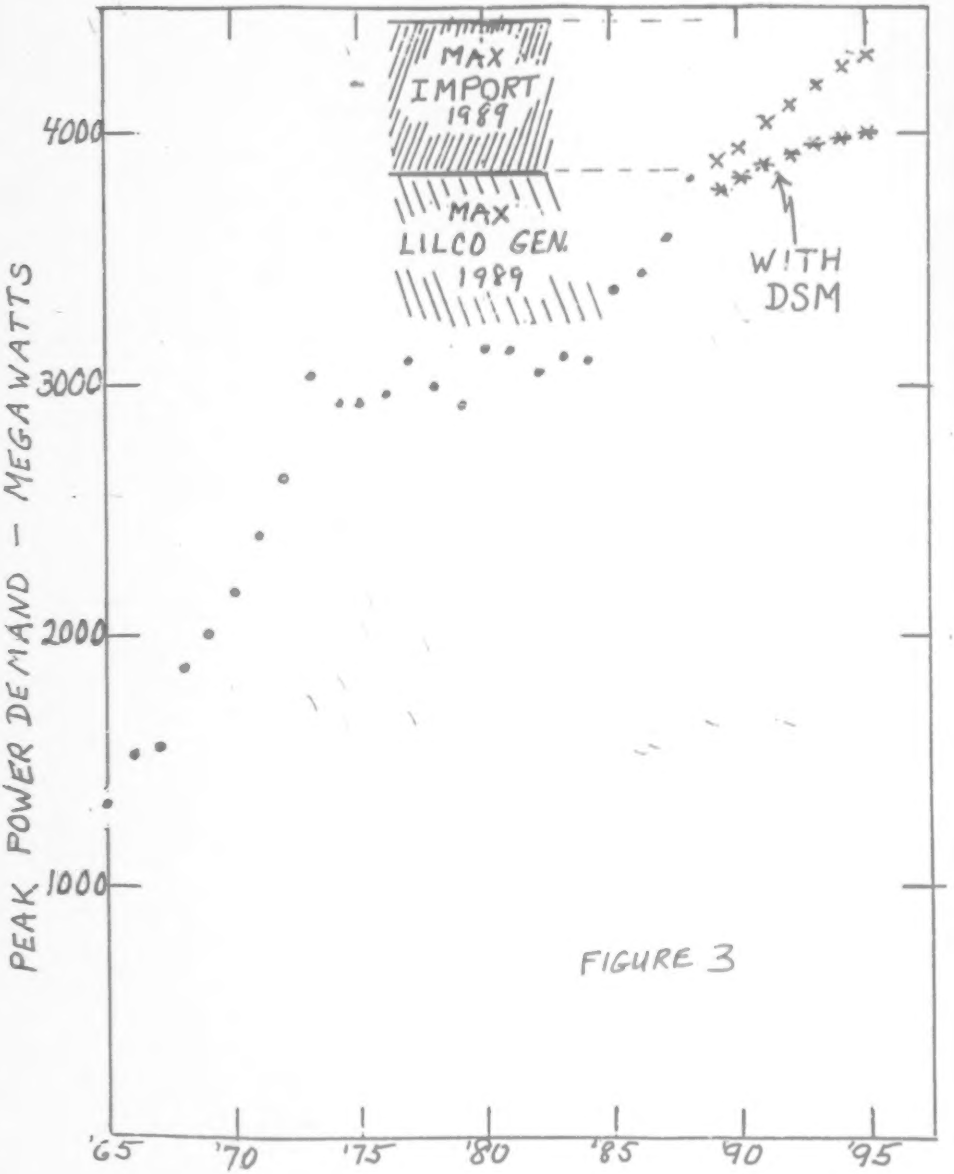
MAX
IMPORT
1989
MAX
LILCO GEN.
1989
WITH
DSM
PEAK POWER DEMAND - MEGAWATTS
4000
3000
2000
1000
'65
'70
'75
'80
'85
'90
'95

FIGURE 3

TABLE 1

LILCO, PEAK POWER SUPPLY AND DEMAND, 1989-1995

YEAR	PROJECTED DEMAND	YEAR	PROJECTED DEMAND
1989	WITH DSM.....3775 MW	1995	WITH DSM.....4010 MW
	18% RESERVE...680		18% RESERVE.. 722
	TOTAL 4455		TOTAL 4732
	WITHOUT DSM..3885		WITHOUT DSM..4310
	18% RESERVE...699		18% RESERVE.. 776
	TOTAL 4584		TOTAL 5086
1989	PROJECTED SUPPLY	1995	PROJECTED SUPPLY
	(GENERATED BY LILCO)[a]		(GENERATED BY LILCO)[a]
	STEAM UNITS.....2731		STEAM UNITS.....2731[b]
	PEAKING UNITS...1111		PEAKING UNITS...1351
	NEW PEAKING..... 133[c]		NEW PEAKING..... ??
	SUB-TOTAL....3975		SUB-TOTAL....4382
	(PURCHASED POWER)		(PURCHASED POWER)
	FIRM IMPORT......646[d]		FIRM IMPORT......646[e]
	INDEPENDENT...... 0		INDEPENDENT..... 378[f]
	SUB-TOTAL.... 646		SUB-TOTAL... 1024
	TOTAL SUPPLY....4631		TOTAL SUPPLY....5406

---

[a] Assumes all LILCO units available at full capacity at time of peak.

[b] Assumes oldest units can continue to be operated beyond normal life-expectency.

[c] Three new units under construction, expected in mid- to late-summer.

[d] LILCO's share of the transmission line is only 309 MW, so the 646 MW optimistic.

[e] An additional 350MW of Canadian power is expected in the late 1990's; however transmission lines to carry this power have not yet been constructed.

[f] An independent power producer intends to construct gas-turbine generating plants on Long Island and sell power to LILCO.

TABLE 2

LILCO STEAM GENERATING PLANTS -- 1989

UNIT	CAPACITY	AGE
PORT JEFFERSON-1	45.0 MW	41 YEARS
PORT JEFFERSON-2	46.0	39
GLENWOOD-4	113.6	37
FAR ROCKAWAY-4	113.0	36
GLENWOOD-5	113.6	35
E.F. BARRETT-1	187.5	33
PORT JEFFERSON-3	187.5	31
PORT JEFFERSON-4	187.5	29
E.F. BARRETT-2	187.5	26
NORTHPORT-1	387.1	22
NORTHPORT-2	387.1	21
NORTHPORT-3	387.1	17
NORTHPORT-4	387.0	12
TOTAL STEAM CAPACITY....	2729.5 MW	

Source: Inventory of Power Plants in the United States, U.S. Department of Energy, 1981 Annual Report, DOE/EIA-0095(81).

STATEMENT IN SUPPORT OF OPENING THE SHOREHAM NUCLEAR POWER PLANT BY J. KEVIN MURPHY IN BEHALF OF 655 ASSOCIATES, INC. AND THE LABOR BUSINESS TAXPAYERS COALITION FOR SHOREHAM SUBMITTED TO THE SENATE ENERGY AND NATURAL RESOURCES COMMITTEE

April 13, 1989

My name is J. Kevin Murphy, President of 655 Associates, Inc., 17 Barstow Road - Suite 400, Great Neck, N.Y. ("655") and a co-founder of the Labor Business Taxpayers Coalition For Shoreham ("the Coalition"). 655 is a ratepayer to the Long Island Lighting Company ("LILCO") the owner of the Shoreham nuclear plant at Shoreham, N.Y. ("Shoreham"). The Coalition is an ad hoc group of Long Island labor unions, business organizations and taxpayer groups representing over 200,000 people on Long Island. A list of the Coalition members is attached as Exhibit 1. 655 and the Coalition support the opening of Shoreham and vigorously oppose Governor Cuomo's ("Cuomo") settlement agreement which proposes to close Shoreham, inflict ten years of rate increases on Long Island ratepayers costing over $1.3 billion, require the ratepayers to pay for building, dismantling and replacing Shoreham with three proposed fossil fuel plants and force Long Island to endure LILCO predicted brownouts and blackouts this summer and for summers to come.

I. SHOREHAM IS A MICROCOSM OF THE NATION'S MAJOR DOMESTIC ISSUES

The efforts of Cuomo to close Shoreham identify most of the major issues confronting our country, as follows:

a) **Energy Shortage** - the entire northeastern part of our country is short of energy, threatening our internal growth and the ability to sustain our economic health. Shoreham is a completed 809 megawatt nuclear plant that can fill the energy void which confronts Long Island. The Shoreham plant is safe, well managed and, if licensed this month, could be operational this summer. LILCO officials predict that without Shoreham, Long Island will suffer at least a 330 megawatt shortfall and resultant brownouts, with possible blackouts. (See attached LI Business News article, Exhibit 2 attached). LILCO can only meet Long Island's needs by drawing upon energy from upstate New York and New England which have their own energy constraints. The damage from brownouts and blackouts to business, jobs, and property values on Long Island is gigantic and could measure in the billions of dollars.

b) **Inflation** - the completed Shoreham plant cost $5.4 billion, much of it from the "willful bad faith" litigation of Cuomo and Suffolk County before the Nuclear Regulatory Commission ("NRC") which ended last month with Cuomo and Suffolk County being dismissed for their improper action before the NRC. The settlement agreement to close Shoreham would require ratepayers to pay for building Shoreham plus the costs connected with dismantling it, replacing it, purchasing interim energy from whatever high cost sources are available, operating costly gas generators during peak periods, undertaking low pay back conservation activities and a ten year rate increase plan requiring a 65% increase over ten years. In addition, LILCO proposes under the plan to pay deferred and new dividends this coming September of over $450 million to stockholders as a result of the settlement. LILCO's ratepayers will be obliged to pay all of these costs which the parties admit will make LILCO the highest cost utility in the country. In addition, LILCO's existing plants, all of which are fossil fuel plants, have an average age of 30 years with no new base load plants on the drawing board, except the completed Shoreham plant. The high maintenance cost of these old plants adds to the inflation factor.

c) **Tax Loopholes** - Cuomo's settlement agreement with LILCO is nothing more than a political deal to close Shoreham. The $5.4 billion cost to build Shoreham, which is carried by LILCO at a book value of $4 billion, and relates to a completed, about to be fully licensed, and modern nuclear plant will be ignored under the terms of the settlement agreement. Instead, Shoreham will be sold to the Long Island Power Authority ("LIPA") for $1. LILCO and Cuomo have agreed that LILCO can seek a $2.5 billion tax write off against the political sale of Shoreham for $1. We submit, this added burden to the taxpayers should be opposed by the Senate as nothing more than a contrived loss in order to permit Cuomo to achieve his political goal by closing Shoreham, while LILCO gets a fat payoff in a ten year rate plan approved by Cuomo's controlled Public Service Commission ("PSC"). If this kind of tax benefit is permitted, then why shouldn't every business make up contrived deals to create similar losses.

d) **Balance of Trade** - Cuomo proposes that when available, LILCO purchase surplus energy from Canada instead of opening and operating Shoreham. As Long Island's energy needs are currently growing annually at 3.5% (approximately 130 megawatts per year) the cost to LILCO of Canadian power, if available, will only add to the balance of trade deficit.

e) **Reliance Upon Foreign Oil** - almost 100% of LILCO's electricity is produced by use of foreign oil. Therefore, if Shoreham is closed, LILCO will continue to rely upon foreign oil and not begin a self sustaining character.

f) **Environmental Protection** - the Bush Administration has a solid plan to protect the environment and prevent increased pollution, acid rain, greenhouse effect and damage to the environment. All of LILCO's present base load capacity is driven by fossil fuels, the Cuomo proposed replacements for Shoreham are three fossil fuel plants and the present sources of outside energy available to LILCO are mostly fossil fuel driven. Added to this is the fact that Long Island and its environment are presently in violation of the Clean Air Act and will obviously further violate the proposed new Clean Air Act. If Shoreham is opened, the acid rain, greenhouse, air pollution, etc. problems will suffer no added increases and, in fact, cause a decrease in the present and planned increasing toxic gases and waste from fossil fuel energy sources.

g) **Private Sector Initiatives** - closing Shoreham will result in LIPA, Cuomo and other New York State agency involvement with LILCO, the ratepayer and Long Island. In addition, the almost guaranteed brownouts and threatened blackouts will stop Long Island's growth in its tracks. Who would move their business to energy starved Long Island? How would Long Island escape increased property tax rates as property values plummet. Opening Shoreham provides Long Island with a self sustaining environmentally clean and efficient base load plant without Cuomo and New York State controlling and running Long Island's future growth. Obviously, private sector initiatives will be destroyed on Long Island by the Cuomo plan to close Shoreham.

II. THE USE OF FEAR AND HYSTERIA BY CUOMO TO MISLEAD LONG ISLAND

In a series of public forums, television appearances and letters to Long Islanders, Cuomo proclaimed Shoreham is unsafe, Shoreham will explode and radiate the area, and Shoreham has no evacuation plan. All of these statements are untrue. Nevertheless, Cuomo repeated and repeated them until many innocent people were damaged into believing these falsehoods to be true. Newsday (Long Island's largest daily newspaper) repeated these false statements and red lined any attempt to rebut them by the Coalition and others. As a result, public opinion polls reflected opposition to Shoreham. Fortunately, this tide has changed. In two recent editorials of April 3 and 4, 1989, Newsday reported the agony which Long Island will suffer without Shoreham (see attached exhibits 3 and 4). In addition, a recent poll by Long Island's largest business organization revealed that 72% of its members oppose the Cuomo plan to close Shoreham. As the truth has leaked out, the fear and hysteria have been replaced by solid support for Shoreham. Clearly, Cuomo should not be politically rewarded with Shoreham's scalp by his use of falsehoods to create fear and hysteria.

III. SHOREHAM IS VITALLY NEEDED

Everyone acknowledges Long Island has a severe energy shortfall which could be solved the minute Shoreham is opened. The shortage, including consideration of purchases from the outside, will be over 300 megawatts this summer. LILCO's principal witness in a March 23, 1989 PSC hearing testified to that effect and further testified that if Shoreham is licensed this month it will solve this summer's energy shortfall on Long Island. He also testified there is no known alternative to Shoreham and that opening Shoreham is in the best interest of Long Island.

The absence of Shoreham this summer will definitely result in at least four to six brownouts this summer according to the testimony of the same LILCO witness before the PSC. (By the way the PSC hearing was for the purpose of PSC's approval of Cuomo's settlement agreement to close Shoreham). Therefore, the uncontroverted evidence of the LILCO expert was that Long Island needs Shoreham and has no known alternatives.

IV. THE CUOMO RATEPAYERS' DISASTER PLAN SHOULD BE STOPPED

Under the Cuomo plan to close Shoreham, the cost to LILCO's ratepayers will be:

a) $5.4 billion to build Shoreham;
b) $350 million - $1 billion to dismantle it;
c) $300 million to purchase alternative sources of energy;
d) $3-4 billion to construct three new fossil fuel plants for which no sightings have been determined or start/completion dated designated; and
e) billions in damages to property values and businesses from brownouts and possible blackouts.

This insanity should obviously be prevented at all costs in the interest of the ratepayers and the citizens of Long Island. Many of us have tried unsuccessfully to fathom why Cuomo wants to inflict such pain and economic chaos upon Long Island. The best we can gather is that he has made a political commitment which he intends to carry out whatever the economic damage and chaos. Obviously, this is improper and should be stopped.

V. CONCLUSION

We urge the Senate Committee to promptly make findings that opening Shoreham is critical to our nation's energy needs and to roll back the threat to our environment from proliferating fossil fuel burning energy plants. Also, we hope you will recommend to the Administration that it intervene in the ensuing NRC hearings when the attempt is made to transfer Shoreham from LILCO to LIPA. Finally, we urge that the Cuomo plan to close Shoreham and impose a 65% rate increase disaster plan on the ratepayers be condemned with a recommendation that the Administration undertake whatever steps it can to open Shoreham and protect Long Island from unnecessary economic disaster.

Respectfully Submitted,

J. Kevi Murphy

J. Kevin Murphy
For 655 Associates, Inc. and the
Labor Business Taxpayers Coalition For Shoreham

JKM:pld

Attachments:

- Exhibit 1
- Exhibit 2
- Exhibit 3
- Exhibit 4

LABOR BUSINESS TAXPAYERS COALITION FOR SHOREHAM

MEMBERSHIP LIST

Association For a Better Long Island
Long Island Mid Suffolk Business Action
Hauppauge Industrial League
Steamfitters Union 638
Plumbers Local 775
Building & Construction Trades Council
International Brotherhood of Electrical Workers Local 25
Long Island Federal of Labor AFL-CIO
Long Island Council For Tomorrow
Open Inc.
Citizens For an Orderly Energy Policy
Huntington Chamber of Commerce
Nassau Suffolk Contractors Association
Scientists & Engineers for Secure Energy
National Electrical Contractors Association
655 Associates, Inc.

EXHIBIT 1

LONG ISLAND BUSINESS NEWS
must reading by 50,000 LI executives

Our 36th Year • February 27, 1989 No 9 | In Two Sections | $2 per issue

The Townsend Letter

LI IS AT RISK!!!

Without the 809 Mw of Shoreham power there will be blackouts this summer since LI's power demand has increased 3.4%, LILCO's aging plants can't meet peak needs, and Con Ed no longer can insure emergency help.

LI's march to *folly* is clear. Blackouts will cause exodus...resulting in reduced property values...causing ever higher taxes...resulting in further exodus and a sharp recession...all avoidable by simply opening safe, cheap, clean, independent-of-foreign-oil, ready and waiting Shoreham. (Last year 79 firms left or expanded off LI!)

THIS IS LIFE OR DEATH FOR LI'S ECONOMY!

After 8 yrs of boom, TREASURE ISLAND has softened, and now is moving to a bust as TAX ISLAND. No longer are unaffordable housing and clogged highways our key problems. We are at a crossroads, pushing taxes up and getting ready to turn off the lights.

(This is why, *for the first time in its 36 yrs LI BUSINESS NEWS* devotes its entire front page to a single story.)

HOW CAN THE GOVERNOR, LI'S OFFICIALS, LIA, *NEWSDAY*, AND LILCO ITSELF (WHO BEST KNOWS THE NECESSITY FOR OPENING BUT PUTS SHAREHOLDERS INTEREST FIRST) NOT BE AGGRESSIVELY CAMPAIGNING TO OPEN SHOREHAM IMMEDIATELY TO AVOID THE BLACKOUTS CATASTROPHE THIS SUMMER?

Won't they wake up to being duped by a few anti-nuke zealots built up by media over the silent majority?

Can't they take a hard look at the facts and see that we are being led into a Vietnam?

If you don't agree with the above, ask yourself WHY there have been no answers given to:

- WHERE are the sites of replacement plants?
- WHO pays the bonds for building Shoreham and the high cost of dismantling and replacement?
- HOW does LI reduce already "unsafe pollution" under Clean Air Act to accommodate new fossil plant pollution?
- WHERE do we get necessary power while replacement plants and lines are being built?

Then you should ask "HOW could our officials have hidden the realities of nuclear power, not have mitigated unfounded fears, and have made evacuation an issue when an explosion or runaway is a myth?"

And WHY has *Newsday*, having editorially criticized formation of the LI Council for Tomorrow as "fragmenting," blacked out all news of pro-Shoreham actions including formation of the broad labor-business-taxpayer Coalition to Open Shoreham?

THERE IS STILL HOPE. The LILCO mess continues because no one will risk the blame for closing Shoreham. And Washington may yet save us from self destruction. We have a pro-nuclear President and Chief of Staff, a Nuclear Regulatory Commission, and an Environment Protection Agency, each of whom can open Shoreham either to keep 109 other nuclear plants in the US from being closed by local anti-business activists, to reduce the nation's dangerous dependence on Middle East oil, or to keep LI from the increased pollution of fossil fuel plants.

My name is PAUL TOWNSEND...any questions???

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Coming Next Week:
BANKING SUMMARY

SUMMER BLACKOUTS ARE FORECAST IF SHOREHAM PLANT DOES NOT OPEN

By John Faletsky

Brace yourself for the "Black *Summer*" of 1989. The energy resources LILCO can count upon to meet the upcoming demands of summer are severely limited. Utility workers consider blackouts a certainty. According to LILCO, over the past 5 yrs electric demand on LI has grown at about a 3.8% annual rate. Since 1982, the average LI household has increased its individual electric consumption by 7%. When the summer peak record of 3,822Mw was established Aug 15, 1988, it represented a 246Mw jump from the 1987 summer peak of 3,576Mw. "It's going to be extraordinarily tight this summer," said LILCO spokesman Jim Lois. "It depends heavily on the weather and when peak demands start occurring."

A power company dependent on the weather is a power company in trouble. LILCO expected a peak demand of 3,500Mw in the summer of 1987; the actual peak demand was 3,576Mw. The utility predicted a 1988 peak demand of 3,730Mw; but electric consumption was nearly 100Mw more than projected.

LILCO has added *no new generating capacity since 1977* when it started operation of Northport unit number 4. The utility is presently installing 3 internal combustion units (ICUs) on Brookhaven property adjacent to the Shoreham plant. But the combined 240Mw the 3 generators represent won't be available until September. Lois said the generators are expected to produce a "phase-in-average of 133Mw," probably by the end of July.

SUPPORTING SHOREHAM'S OPENING

PUBLICATIONS:

Forbes Magazine	*Pennysaver Brookhaven*
NY Times	Record Newspapers
NY News	*LI Business News*
NY Post	*Journal of Commerce*

ORGANIZATIONS:

Scientists & Engineers for Secure Energy	IEEE
	LI Fed of Labor
NYS Soc of Prof Engineers	IBEW Local 25
Hauppauge Ind'l Assn	N-S Building Trades Council
Assn for Better LI	N-S Contractors Assn
LI Midsuffolk Bus Action	Assn of Investors in NY Utilities
110/Action	
Huntington Chamber of Commerce	Open Inc
	LI Assn
LI Council for Tomorrow	Citizens for an Orderly Energy Policy
Steamfitters Local 638	

Most of us take the generation of electricity for granted. It's as if the simple household click of a switch, and not the perfervid operations of boilers, pumps and sweating machinery, provides power. Most of us were blissfully unaware of the herculean effort mustered to deliver power last summer. All of the utility's 5 baseload steam generators (one of them pulled out of a 5-yr retirement) managed a combined availability of 98.2% on peak days. Industry-wide, across the nation, the average is 83%. An electrician familiar with the plants said he was "amazed the power stayed on line. It was like Murphy's Law in reverse. Everything that was supposed to fall apart, didn't fall apart. Plants are getting so old that boilers have to be retubed and many of the pumps replaced." The average age of LILCO's baseload plants is 30 yrs. Some were built in the 1940s. "I don't know what closing down Shoreham accomplishes," said a boilermaker. "It really leaves LI in a lurch." He said the Orange & Rockland and Central Hudson utilities are currently converting plants from oil to coal as a hedge against a possible "oil crisis." He admitted a "selfish" preference for coal generation because more boilermakers are employed on a coal-fired unit "than on a nuclear unit," but expressed no anti-nuclear sentiment. "Power is power as far as we're concerned."

LILCO forecasts a peak demand of 3,900Mw this coming summer (a preliminary calculation). By virtue of its expensive conservation and energy management programs (1989 tab is $35.5-M), the company expects to shave demand by 109Mw. Last year, LILCO issued 4 or 5 power alerts — telephone, radio, TV and wire service appeals for voluntary public curtailment of power. The appeals, thanks to positive public response, resulted in an estimated savings of 25Mw during peak periods.

LI's electricity comes from 5 baseload plants (Northport, Port Jefferson, Glenwood, Island Park, Far Rockaway) and 39 turbine generators (ICUs) located at 12 LI sites. Holtsville, the largest ICU site, contains 10 turbines that can provide 480Mw of combined emergency power. Last summer, the ICUs performed at 97% capacity, 20% above

Continued on Page 17

A *LIB* Special

REAL ESTATE FOCUS

Section S

- Top Office & Professional Condos
- Empty Nesters Reshape Market
- LI in Commercial Real Estate Spotlight

Coalition Formed To Open Shoreham Plant

A labor-business-taxpayer coalition to campaign for the full-scale operation of Shoreham was launched by the LI Council for Tomorrow last week. A score of union, scientist, and business organizations have expressed support for Shoreham's opening as have leading media including the *NY Times* and *Forbes*. Council leaders emphasized the costly impacts upon LI's environment and economy of a failure to utilize Shoreham and outlined plans for a "focused active campaign to dispel the myths that have locked Shoreham into the controversy and stalemate it is in today."

"We need Shoreham and we need it now," said J Kevin Murphy, council co-founder and former CEO of Purolator Courier and of Trailways Inc. "Without Shoreham, Nassau and Suffolk face electrical starvation starting this summer followed by economic disaster."

Also last week, the Labor Business Taxpayers Coalition for Shoreham issued a written challenge to SC Legislators Greg Blass (R-Riverhead) and Wayne Prospect (D-Huntington) to debate LI's energy shortage and the need to open the Shoreham nuclear plant.

The Labor Business Taxpayers Coalition was recently formed to demonstrate the substantial support on LI for opening Shoreham and consists of major labor, business, and taxpayers organizations including: LIMBA, IBEW Local 25, OPEN Inc, Steamfitters Union, ABLI, Huntington Chamber of Commerce, HIA, Kalis Construction, Brookhaven Nat'l Lab, Scientists and Engineers for Secure Energy, LI Federation of Labor AFL-CIO, LI Building and Construction Trades Council, Plumbers Local 775 and the NS Contractors Assn. Its members represent over 150,000 people on LI, according to the coalition.

LI Missed Blackout, Barely

The LI Lighting Co (LILCO), prepared to institute what is called "The Rolling Blackout" in a power emergency, came whisker-close to doing just that this past summer. On Labor Day, 2 Northport units — operated at 99% capacity throughout the summer — went down. At around the same time, the Y-50 cable which links LI to 600Mw of Con Edison power was out of commission for a week. The Y-50 and Northport losses missed intersecting with each other by a few days. According to LILCO, had they occurred simultaneously, the utility would have had to cut service to 20% of its customers, rotating from 1/5 of the Island's power pie to another 1/5, etc. — in hopes of averting a system collapse reminiscent of the fabled Northeast Blackout. —JF

EXHIBIT 2

Summer Blackouts Forecast Without Shoreham

Continued from Page 1

the national average. Though designed to run only a few hours during peak period emergencies, LILCO's ICUs must run around-the-clock to meet summer peak demands.

LILCO also imports power. Last year the utility purchased 250Mw from Con Edison. The same option isn't available this year. In fact, *Con Ed can't provide LILCO any power this year.* "They have a growing requirement to provide energy to their own customers," said Lois. "Con Ed can provide us zero power." Municipal District Agencies (MDA's) provided LILCO with 25Mw last year. *There will be no power forthcoming from MDAs this year.*

In 1988, LILCO imported 613Mw of power (73Mw from indigenous municipal plants, MDAs, and independent power producers). It projects 646Mw this year (77Mw indigenous), but the seeming 33Mw advantage is illusory. The classic military doctrine concerning the weakness of stretched out supply lines applies to LILCO. In an effort to make up for the loss of Con Ed power, the utility is working a deal — subject to state approval — to get 225Mw from NYS Electric & Gas (NYSEG). But a transmission agreement has to be ironed out with Con Ed and Northeast Utilities (NU/CT). Lois said it must be established that other utilities can "consistently" send power through their transmission lines — "that it won't be blocked off and used by somebody else."

Consonant with the importation of "far away" power is "low reliability." This was demonstrated vividly last year when Northeast Utilities, drained of its excess capacity and plagued by numerous brownouts, phoned energy-sapped LILCO asking for power.

Tethered to the outside world by only 4 major power lines, 2 beneath LI Sound and 2 between NYC and NC, there is a limit to on-Island transmission capacity. LILCO's most important umbilical, a 17-mile, 345,000-volt cable running from Glenwood to a Con Ed substation in Westchester, has already been overloaded and subject to what is called a "cooling project," an effort to upgrade carrying capacity on an overutilized tie. The politically ballyhooed Sound Cable project, promised for the summer of 1992, is captive to the usual NIMBY litigation (1993 is the new target). Power producers say that absent the cable, Shoreham's 809Mw's cannot be replaced, no matter how earnest the utility's conservation and demand-side management programs.

Fuel reliability is another worry. LI is the only area in the continental US that is wholly dependent on oil, most of it foreign, for local generation of electricity. There are no nuclear, coal or hydroelectric generators on LI.

Said Lois: "This is the bottom line. The electric load is growing rapidly. *Electric generation is inadequate*. The ability to import power from off-LI sources is limited. The transmission lines required to get off-Island power here are less than totally reliable.

"We have 3,842Mw on LI right now." Add to that the 133Mw expected from the 3 Brookhaven turbines, and the 646Mw expected *if* all importation agreements pan out, and there's a grand total of 4,621Mw. But LILCO has a contractual requirement with the NY Power Pool to maintain an 18% peak demand reserve margin. That means LILCO must have a 702Mw (18% of 3,900Mw) reserve capacity on top of the 3,900Mw it will need to meet peak summer requirements (assuming the forecast is accurate). The offshoot: LILCO must have at least 4,602Mw of power available. The reserve margin requirement is a serious one. Failure to meet it results in heavy financial penalties. "We have had to pay penalties many times; last year 3 or 4 times. In 1986, we paid $100-M in penalties for not keeping the required reserve margin. These penalties are passed on to the ratepayer right away," explained Lois.

If everything goes 100% according to plan: if all off-Island supplies arrive on schedule; if already overtaxed power plants continue to operate at miraculous levels of productivity — then LILCO has a 19Mw margin for error. Add the 109Mw savings the utility expects to reap from its conservation and demand-side management programs, and the margin is 128Mw. But numbers don't lie and there are too many ifs. The summer peak demand projection, conservative by nearly 100Mw last summer, could underestimate LI's power appetite once again. No forecaster can predict the operations of nature.

"If the weather is perfect and there's 100% fuel, generation and transmission availability," LILCO might scrape by. The company spent $17-M performing maintenance on its baseload plants this winter. But how long can LILCO's plants be expected to run full-bore without a breakdown?

"We are operating right on the edge," said Lois. "It's not a matter of if anymore, but when."

SUNY Restructuring

Continued from Page 3

school, because of the importance of its graduates to the LI regional economy.

"This unfortunately leaves at risk, for the most part, only relatively small operations, including a variety of more applied or professional programs designed to assist in regional-economic development," said Dr Marburger. "Some of these have been highly successful in attracting outstanding applied researchers and external funding."

The loss of such programs "will be a disaster for Stony Brook," said Dr Marburger. "We stand to lose not only our attractiveness as a 'magnet' for high technology development, but also our credibility with talented faculty and researchers who cannot risk their careers to such instability. Stony Brook would not be able to retain its mission of fostering regional economic development."

The applied, professionally-oriented and interdisciplinary programs are most often related to specific societal problems, whether in teaching, environment, technology or health care. Dr Marburger noted, "We are concerned that the programs most vulnerable to retrenchment are also those in highest demand by the population traditionally dependent upon public higher education."

Only rigid control of spending throughout the university, an all-out energy conservation program, and substantial declines in the price of oil will make it possible for the university to close its books in April without a significant gap, according to Dr Marburger.

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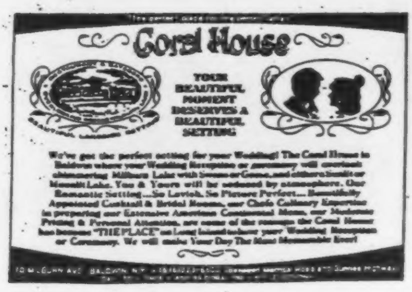
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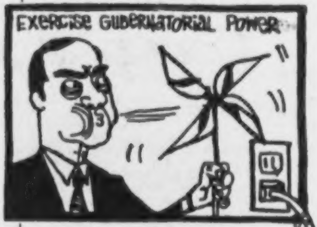
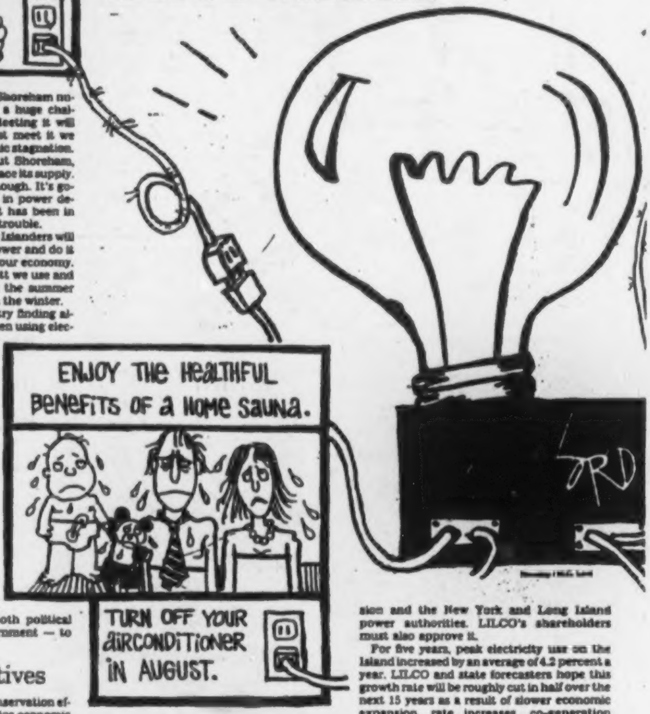


Living Without Shoreham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Without electricity from the Shoreham nuclear plant, Long Island faces a huge challenge over the next decade. Meeting it will take planning and sacrifice, but meet it we must. The alternative is economic stagnation.

The reason is simple: Without Shoreham, the demand for power may outpace its supply.

Make no mistake about it, though. It's going to be tough. If the growth in power demand even approaches what it has been in the past five years, we're in big trouble.

In the coming years, we Long Islanders will have to learn how to use less power and do it without stunting the growth of our economy. It means watching every kilowatt we use and even sweating a little more in the summer and bundling up a little more in the winter.

It means business and industry finding alternatives to the way they've been using electricity. That might cost money, but it's an investment in Long Island's economic survival.

And it will mean that elected officials — who have been almost unanimous in their opposition to the plant — must demonstrate the courage to fight opposition to locating new power plants in their communities. The state has a special responsibility to help keep the Island's lights on: Gov. Mario Cuomo must tackle this problem with the same tenacity with which he led the fight against Shoreham. Closing the plant is an extraordinary decision, and now it is going to take an extraordinary effort — from both political parties, from all levels of government — to keep this island functioning.

No Real Alternatives

The alternatives to a major conservation effort aren't very appealing: A major economic recession could solve LI's energy supply problem by stopping growth in its tracks, but no one wants that. So could rapidly rising oil prices. Without Shoreham, which would replace 336 million gallons of oil a year, LILCO's power plants will depend almost totally on foreign oil. Higher fuel costs will drive up electric rates — over and above the cost of the settlement — and so hold down consumption, another unpleasant alternative.

Barring such calamities, Long Island will have to rely on conservation, good will, good luck and good neighbors for sufficient electricity in Shoreham's absence. Cool summers would help — electric use is at its highest here on hot summer days. But without cooperation from electricity users, politicians and other utilities, brownouts and even blackouts are a virtual certainty. The challenge is to minimize the disruptions.

While projections differ somewhat, there's no major disagreement among the planners about the Island's future power needs. Most of the figures used here come from the original settlement document negotiated by LILCO and Cuomo, as updated by LILCO. The final settlement is now awaiting approval by the state Public Service Commission and the New York and Long Island power authorities. LILCO's shareholders must also approve it.

For five years, peak electricity use on the Island increased by an average of 4.2 percent a year. LILCO and state forecasters hope this growth rate will be roughly cut in half over the next 15 years as a result of slower economic expansion, rate increases, co-generation (businesses building power plants for their own use and selling any surplus to LILCO), general conservation and a gradual change toward more efficient electrical appliances.

On top of this "base" conservation, the plan calls for reducing the growth in peak demand further, to about 1.3 percent a year, by managing the power load during times of high consumption. Effectively, that means cutting the rate of growth in peak demand by more than two-thirds. That won't be easy.

If electricity demand continues to increase at the same rate as it has since 1982, we'll be in deep trouble. Unfortunately, the

EXHIBIT 3

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higher the consumption is here, the higher it's likely to be elsewhere in the region, which means that outsiders will have less power to sell to us just when we would need it the most.

Everyone Must Pitch In

To bring down demand, all of us — industrial, commercial and residential users — will have to put up with inconveniences. Communities will have to change their tune and accept new power plants, transmission lines and even garbage incinerators in their midst.

The plan for supplying Long Island with sufficient electricity until the turn of the century and beyond relies on five main elements:

• New power plants, starting with the 240-megawatt oil-burning combustion turbines LILCO is now installing at the Shoreham site. They are designed to operate only during peak demand. They're cheap to install but the fuel is expensive; they run on heating oil. Long Island is also going to need basic, base-load plants. Plans call for the first one, either gas or coal-fired, to come on line in 1998. No site has been selected. It would have a capacity of about 300 megawatts and could be built by LILCO, the New York Power Authority or an independent company. Other base-load plants would follow, depending on demand.

• Keeping all of LILCO's old power plants running, and running well, for 20 years or more; a challenge, because old plants wear out. One — the oldest unit at Port Jefferson — turned 40 last year; most of the rest are over 30. Only the two newest units at Northport are less than 20 years old.

• Power from co-generators or other independent producers totaling 300 megawatts by 1995. The major source is expected to be electricity from garbage incinerators. But, as desirable as recycling is for other reasons, it cuts into the power output of the refuse-to-energy plants. LILCO is also hoping for more co-generation plants such as the one Grumman is building. They furnish heat and electricity to factories and commercial complexes while selling the excess power to the local utility.

• Off-Island imports, which fall in two categories: High-cost power which can't be interrupted, and cheaper interruptible power brought primarily from Canada. Imports will be absolutely critical to the Island. Trouble is that even with new interconnections to the mainland power grid, growth in demand elsewhere means that, after the imports peak in the mid-'90s, there'll be less and less available for Long Island. See this space tomorrow for more on imports.

• Conservation. The conservation we're talking about here doesn't just mean turning off the lights when you leave the room, insulating your house or buying energy-efficient appliances. Those are all good things to do — they save money and electricity and help protect the environment — but LILCO has also embarked on an ambitious conservation program aimed at shaving peak demand. That means cutting summer consumption.

Conservation in the traditional sense saves consumers money; they use less of a product, such as electricity. But conservation aimed at reducing the power load during peak demand is expensive for those who are *not* participating. It means a utility *pays* certain customers for using less electricity at specific times.

LILCO is currently instituting the most ambitious — and costly — conservation program in the state. It's called demand side management (DSM). By paying industrial, commercial and large residential users directly or paying all or part of energy-efficient installations, LILCO hopes to shave peak demand by some 300 megawatts by 1995. The DSM program is estimated to cost more than half a billion dollars by the turn of the century.

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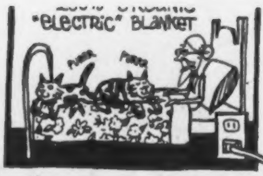

For industrial and commercial users, LILCO is offering time-of-day metering, which prices power cheaper at night when demand is low. Other options are energy cooperatives, which are groups of businesses that agree jointly to reduce electricity use when LILCO requests it in return for lower rates. Large industrial and commercial users who agree to cut contracted power when notified 18 hours in advance are getting discounts.

Paying to Conserve

Conserving power during peak demand gets more complicated with residential customers. For them, LILCO has embarked on what it calls "direct load control."

This entails installing radio-controlled switches on central air conditioners, pool pumps and water heaters. As power use rises, LILCO can shut them off centrally. Customers who agree to have their pool pumps or water heaters turned off for six hours at a time up to 15 times a year will be paid $50 annually for each appliance. Those who agree to have their central air conditioning cycled off for 20 to 50 minutes an hour will get up to $150 a year. Each installation, including labor, materials and overhead, costs LILCO about $300.

The energy savings aren't expected to be great in the beginning — some 20 megawatts this summer — but will grow as the program is expanded. Also, no one knows for sure how customers will react. Having your pool pump shut off is no great sacrifice, but doing without hot water for several hours might be.

Conservation and various methods for holding down peak power consumption would have made sense even if Shoreham were scheduled to operate, but the utility probably wouldn't have embarked on such an expensive and extensive program so soon if the plant were on line.

As it is, Long Island had better plan on making it work. A little inconvenience and greater attention to practices that waste precious energy are small prices to pay for keeping refrigerators and computers humming.

Tomorrow: Imported power.

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After Shoreham: Don't Overrely on Power Imports

Second of two parts

Some Long Islanders firmly believe that we can prosper and grow without the 820-megawatt Shoreham nuclear power plant simply by buying the new power we need from off the Island.

They're wrong.

We import power now, and we'll have to import lots more in the future, but there's no way we can import enough to keep the lights on, the computers whirring and the economy growing. As yesterday's editorial spelled out, we must also generate more power here on Long Island and find creative ways to conserve electricity dramatically.

But imports are a crucial part of our power mix. They depend on two essentials: ample outside sources and adequate transmission facilities. Both can present problems.

Outside sources may not be ample because other regions may need more power, too. As for transmission facilities, we are an island at the tail end of a long power supply line that serves others. We can have only part of the power that comes through the lines.

Our cables link the LILCO system to Con Ed's through Queens and under Long Island Sound to Westchester County. A much smaller underwater cable from Connecticut to Northport connects New England to LILCO's grid. But it's insufficient, and a backup is badly needed. So a new cable, constructed by the New York Power Authority and paid for by LILCO, is scheduled for completion in the fall of 1991. Then, our acute energy crisis will ease for a few years. But it's no panacea.

The new Sound cable will be capable of carrying 600 megawatts of electricity. But we may not be able to buy that much when we want it the most. Power demand has increased sharply in the rest of the Northeast, too. LILCO used to buy power from Con Ed, for example; Con Ed now needs that power itself and is buying 800 megawatts from Canada to boot.

So LILCO is negotiating to buy power from New York State Electric and Gas Co. We also get electricity from the New York Power Authority, which buys power from Canada, notably Hydro Quebec. Most Canadian imports are interruptible, which means that when Canada needs the power itself, it can cut its U.S. customers off. Canadian demand drops in summer, when ours peaks, so the arrangement usually works well. But we can't always count on it in a pinch.

Starting in 1995, a new deal with Hydro Quebec will provide New York with 1,000 megawatts of firm power, of which LILCO is assured only a portion — 218 megawatts. Trouble is, that's not new power. New York got that much under the old contract, but it was interruptible.

While projections are shakier the further into the future the forecasters peer, LILCO's planners expect emergency imports to decline rather sharply after peaking in 1996 at 1,100 megawatts — or about 300 megawatts more than this summer. (LILCO currently has the ability to import 800 megawatts on an emergency basis.) No one is seriously suggesting constructing another huge transmission line from Canada. Opposition to high-tension wires is growing everywhere.

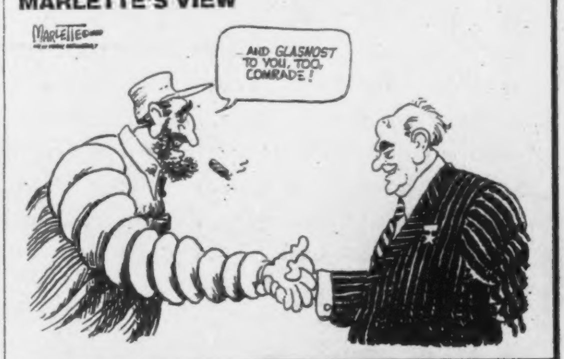
Being dependent on Canadian electricity generated in a wilderness 1,000 miles away has other pitfalls. Much can go wrong between here and there, and Hydro Quebec has been experiencing some difficulties. The province has suffered three major blackouts in a year.

Environmental concerns have also started to crop up. Hydro Quebec has already flooded an area larger than England, and many Canadians are getting worried about the impact on Eskimos, Indians and wildlife. Further expansion could run into serious opposition.

Another growing concern is the drought. Reservoir levels in Quebec have been dropping, which could affect power production. And while NYPA's big hydro projects at Niagara are better equipped than most, prolonged drought affecting the Great Lakes would eventually take its toll. Smaller hydro stations, such as those on New York City's water reservoirs, are already affected.

Imported power will help Long Island weather its current energy crisis but, like it or not, it means we'll remain dependent on foreign oil and foreign electricity for decades to come. Let's just hope that both supply lines hold — politically as well as physically.

MARLETTE'S VIEW


MARLETTE
AND GLASNOST TO YOU, TOO, COMRADE!

Political Bull — er, Ox

Suffolk County Executive Patrick Halpin stirred an heraldic crisis recently by banishing the Suffolk seal with its generic bovine creature (historians swear it's an ox) from some county letterheads and substituting a new logo — a letter S stylized to the point of Rorschach-test ambiguity. Traditionalists cried heresy; mockers compared the writhing S to a garden slug in ecstasy. In response, Halpin said that henceforth, letterheads will carry both the S and the ox. By deciding to have it both ways, Halpin chose the oldest and most effective balm in politics: compromise.

New York Is Days Late and Millions of Dollars Short

Gov. Mario Cuomo and the Legislature are fiddling while New York's credibility sinks:

For the fifth consecutive year, passage of the state budget is late, and last week an additional revenue shortfall of $164 million was discovered, on top of about $1 billion that was earlier anticipated.

With that revelation, it's hard to imagine how deferring tax cuts scheduled for this year and next can any longer be ignored as the best possible solution.

Yet Cuomo and Senate Majority Leader Ralph Marino persist in talking only about a $925-million package of new taxes and fees of dubious value, and which don't add up to the amount needed to close the budgetary gap.

And while the failure to meet the April 1 deadline doesn't worry the state's financiers, it will prove costly for local school districts if their mid-April aid payments aren't delivered on time — which seems likely.

Wall Street appears more concerned that being late is indicative of the inability of state leaders to confront the fiscal crisis with frankness. Cuomo and Marino, however, are engaged in political gamesmanship. They want to avoid blame for broad-based new taxes.

Assembly Speaker Mel Miller, alone, appears to have the courage to admit that going ahead with the third and fourth years of the tax cuts, enacted in 1987 when the state was awash with cash, makes little sense now when revenue streams have slowed to a trickle.

Cuomo and Marino's plan, meanwhile, projects that about $175 million can be raised by increasing the cigarette tax from 13 cents to 34 cents. That's more of a will-o'-the-wisp than reality, for it ignores a constant decline in cigarette consumption and that a higher tax is just as likely to encourage bootlegging as create new revenue for the state.

Because he's anxious to avoid blame for taxes, Cuomo's trying to dampen the state's fiscal crisis with a garden hose. But it's a water cannon that's needed.

EXHIBIT 4

WRITTEN STATEMENT OF MAURICE R. SCULLY
Executive Director
CONNECTICUT MUNICIPAL ELECTRIC ENERGY COOPERATIVE
Submitted April 21, 1989

Committee on Energy and Natural Resources
U.S. SENATE
For the Hearing Record of April 13, 1989
U.S. ELECTRICITY SUPPLY AND DEMAND
IN THE NORTHEASTERN REGION

INTRODUCTION

Thank you, Mr. Chairman and Committee members, for this opportunity to present written views of Connecticut's municipal electric distribution utilities and their power supply agency, the Connecticut Municipal Electric Energy Cooperative (or "CMEEC"), on the question of supply and demand for electricity in the Northeast in the years ahead.

Connecticut municipal utilities share the regional -- and Congressional -- concern that Northeast electric supply deficiencies will become the rule, not the exception. Our consumers and potential consumers are being affected. Major electric users in the CMEEC utility territories have not been reticent in asking public and penetrating questions. Is the perceived inadequacy of electric power supply real? Can we rely on help from other states and regions? To what extent can we as large business customers depend on the local utilities for reliable electric service in the future?

Today's answers are too often inadequate. While the Connecticut municipal utilities believe they have adequate resources to supply reliable and economic power to customers, at least during the next 6 years, they are part of an integrated utility network affected by larger Northeast region electric supply, demand, and reliability issues.

Recognizing that many different factions (including utilities, regulators, and legislators) are diligently working to address the same issues which your Committee has raised, I applaud the Committee's foresight in investigating changes which can be made to ensure effective short- and long-term solutions to looming energy shortages in the Northeast.

POWER SUPPLY AND TRANSMISSION ISSUES

An adequate supply of reliable electric power at reasonable rates is essential if the region is to maintain at least the current rate of economic prosperity. In New England electric power is neither abundant nor inexpensive. Solutions to the problem lie in 1) constructing efficient and economical power generation units and 2) optimizing the transfer of reliable supplies of electricity into and within New England.

Electric Power Supply

One obvious and overriding reason for imminent electric supply shortages in the region is the lack of a focused and comprehensive long-term national energy policy. The void has brought with it a degree of paralysis in the utility industry created in part by well-intentioned public-sector policymakers as in the cases of the Seabrook and Shoreham nuclear stations. There are lessons that are still being learned by utilities and regulators alike from Seabrooks and Shorehams.

Even though CMEEC does not have an interest in the Seabrook unit, we are concerned about the limbo status of this unit. If the capacity of this facility is made available to New England in a safe operating status, it will help alleviate short-term energy shortages on the horizon.

There has been significant testimony presented on this point and my comments on the issue will be limited. Long-term solutions raise other issues, however. In this regard, I believe the subject of the transmission of electric power is crucial. It is the focal point of my testimony.

Electric Transmission

As the superhighway network of the electric utility business, high-voltage transmission lines interconnect power plants with a utility's distribution system, with other utilities, with neighboring power pools, and, in some instances, with the electrical systems in other countries.

Currently, surplus generating capacity is unevenly distributed throughout the country due to transmission limitations. To make good use of capacity surpluses, willing buyers and sellers must have ready access to each other so that the most efficient units can be operated at their optimum dispatchable levels.

Transmission is also a crucial element in new plant construction. Major electric generating stations are located where there is a confluence of necessary elements -- a large land area, economic access to a fuel supply, a plentiful amount of water, an adequate transportation system, a place to dispose of surplus heat, and an absence of unacceptable aesthetic insults. There are not many places like that left. To maximize the utilization of such sites, nondiscriminatory transmission access is essential.

Generally, the transmission system consists of power lines and associated equipment with a rated capacity of 69,000 volt (69 kV) or greater. In New England, transmission lines range up to 345 kV for alternating current and 450 kV for direct current, the latter as in the New England/Quebec Interconnection.

The efficiency and reliability of regional electric supply is highly dependent upon the adequacy of the transmission system to transport large blocks of power to and from generation sources and among the individual utilities that access the system. Coordination among utilities, regionally among power pools and even internationally, has improved in recent years. However, it is generally acknowledged that the existing New England transmission system 1) is becoming physically inadequate to allow optimum use of all generating resources, and 2) needs the construction of new transmission facilities if we are to guarantee reliable fairly-priced delivery in the future of the more remote but economical sources of power.

Design, construction, ownership, and operation of existing transmission facilities in New England are carried out by individual utilities. Transmission access is controlled in a variety of ways. Members of the New England Power Pool ("NEPOOL") have defined but limited rights to access transmission lines owned by member utilities in order to transmit power generated from certain facilities.

Current NEPOOL practice subjects the construction of transmission facilities to financial, regulatory, political, and environmental limitations of an individual utility rather than to the broader considerations of the regional need for the facilities. Therefore, there is no assurance that new lines or options for transmission will even be considered, much less implemented, in either the most economic manner or in ways that optimize other regional goals, i.e., minimization of adverse impacts upon land and visual resources. Economic choices that are now being made based on current information with respect to transmission can be quickly negated in the future by changes imposed by the owners of that transmission system.

I offer no guaranteed solutions. However, I believe that honest affirmative answers to the following questions ultimately will lead to finding long-term solutions which meet the energy needs of the Northeast:

1. Does the region's current institutional and corporate utility structure, marked by individual utility autonomy and separate differing state regulations, severely hinder our ability to attain acknowledged publicly-desirable goals: assurance of energy supply, efficiency, cost effectiveness, and control of adverse environmental impacts? With such hindrances in place, will the ultimate cost impact on New England's electric consumers and regional economic growth be higher than it should be?

2. Can integrated regions such as the Northeast assure 1) construction of optimum future transmission facilities with supportive institutional mechanisms which allow non-discriminatory participation in those facilities and 2) similar non-discriminatory utilization of existing facilities to maximize efficient delivery of electric power for all utilities from sources both internal and external to the region?

Numerous studies have been undertaken on the potential synergistic opportunities offered by large differences in generating costs between the petroleum burning utilities of the Northeast and the coal burning utilities of the Midwest. Inevitably, such opportunities to obtain common economic benefits from inter-regional electric sales and purchases are usually constrained by limitations on the existing transmission system and by the monumental task of siting new transmission in multiple states.

Federal involvement to facilitate voluntary cooperation or, in the alternative, to exert lawful authority to impose eminent-domain power between states in interstate and intrastate transmission are actions raised in the past which should be resurrected and investigated again. Connecticut municipal utility officials believe the federal government can be a constructive force in finding ways to affirmatively answer such pertinent questions.

CONCLUSIONS

The economic environment affecting energy decisions and energy policy has altered significantly in the 1980's. We have experienced movement away from national solutions to power problems, such as federal promotion of nuclear power, and more toward regional and state actions. The attitude of the 1970's that energy issues were a national crisis -- "the moral equivalent of war" -- has been replaced by price-driven energy policy and decisions.

The Connecticut municipal utilities feel strongly, however, that in the broad scheme of things we still need responsive government involvement. Our systems feel there is a strong government role in major public policy issues dealing with electric transmission access.

Government must continually reevaluate its activities in light of public need. We believe the need at this time is for utilities, regulators, and government alike to look hard at where effective future power supply will come from, facilitate its development, and assure that it reaches the ultimate consumer. Government must act affirmatively to assure adequate transmission capability and open access to transmission.

The Northeast is at an energy supply turning point. The municipal utilities of Connecticut are committed to meeting the needs of local consumers by obtaining and supplying the most reliable and economically-priced energy available. We need the help of the federal government to ensure we are able to fulfill this commitment.

Balanced rules at the national level will help the regional situation improve, not regress. Top priority must be given to workable transmission policy and a clear and sensible national nuclear energy policy, all balanced with the requirements of the environment in each region.

Connecticut public power utility systems in CMEEC stand ready to back such policies. In the final analysis, sound government energy policy is one of the most important protections we can provide to our consumers.

WRITTEN STATEMENT OF

GARY L. HUNT
General Manager of
THE MASSACHUSETTS MUNICIPAL WHOLESALE
ELECTRIC COMPANY
Submitted April 24, 1989

For the Hearing Record of
COMMITTEE ON ENERGY AND NATURAL RESOURCES
U.S. SENATE
April 13, 1989

Concerning

THE ELECTRICITY SUPPLY/DEMAND OUTLOOK FOR THE NORTHEASTERN UNITED STATES

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INTRODUCTION

Thank you, Mr. Chairman and committee members for this opportunity to present the written views of another segment of the New England electric utility industry. I am making this statement as the chief executive officer of a municipal utility corporation which is deeply involved in electric supply and demand issues in New England, particularly Massachusetts.

The Massachusetts Municipal Wholesale Electric Company (or "MMWEC") is a joint action power supply agency. Under its banner 32 members, which are Massachusetts municipal utilities, have banded together to contract to receive the bulk of their present and future electric power requirements. These utilities serve approximately 225,000 customers. MMWEC is a political subdivision of the Commonwealth of Massachusetts, and it has issued $1.5 billion of tax exempt bonds to finance some of the electric facilities required by the member utilities. A major portion of the bonding is related to our joint ownership share of 11 1/2 percent of the Seabrook Plant. We are the fourth largest shareholder in the Seabrook project.

MMWEC is also heavily involved in the regional power pool known by the acronym "NEPOOL". Even though the Massachusetts municipals' share of the New England electric load is in the range of five percent, MMWEC represents the majority of the publicly-owned systems, which comprise more than thirty percent of the utilities within the NEPOOL organization.

MMWEC has a keen interest in maintaining adequate electric power and transmission service throughout the Northeast region due to its historical and necessary reliance upon electric resources that are remote from the small, scattered service territories of MMWEC's municipal members. Any degradation or threatened degradation in the power supply adequacy has a dual impact upon entities such as ours. Our customers are directly impacted by voltage reductions and service interruptions. This, in turn, leads major industrial customers, which represent a significant economic force, to question the viability of continuing to support operations in an area which appears to have inadequate supplies of critically-needed electric generation.

Further, but no less significant, is that perceived shortages of supply result in artificial price escalation on related support services, such as transmission. Transmission poor utilities, like ours, therefore are forced to pay higher prices to provide needed electricity to a shrinking market base. The result is a classic "Catch-22" situation for small utility systems, placing them at a considerable disadvantage within the region.

Speaking for the New England Power Pool, George Edwards in his prepared remarks before this committee has apprised you of the existence and mission of the New England Power Pool (or "NEPOOL"), explaining that it is a very strong and efficient organization in its day-to-day operating assignments, having the capability to enhance the reliability and economy of the region's electric service. I agree with that assessment. He also indicated NEPOOL's responsibility for forecasting the region's daily, weekly and long-term energy needs. What was left unclear is what NEPOOL's coordinated planning criteria will be for meeting such long-term needs. Also unclear is what actions, if any, the NEPOOL participants are obligated to fulfill any such long-term plans. Resolution of these issues is the focus of my concern.

In his prepared remarks, Mr. Edwards indicates that the New England utilities, regulators and other officials will not permit a situation to develop that would "allow electricity supply deficiencies to be an anchor on the region's economy." I certainly cannot be as unequivocal in any similar assertion relative to the subregions served by my member systems.

PUTTING FORECASTED LOAD GROWTH IN PERSPECTIVE

As with investor-owned utilities in New England, publicly-owned utilities in Massachusetts have exceeded our past load growth expectations. Long-term forecasts made since 1985 have consistently indicated a compound annual growth rate of between 2 and 3 percent over the ten-year period. However, actual increases in electricity consumption over just the preceding two years have exceeded 6 percent annually. Today, in reflecting the consensus prediction of a national and state economic downturn, our forecasters have produced our most recent long-term forecast calling for an average 2.5 percent electricity growth rate from now through 1998. A 4.4 percent increase is projected for 1989. However, the first quarter of 1989 has continued to see electric energy growth in excess of 5 percent over similar periods of last year. I question if we have adequately provided for the contingency that each of our best load estimates will be proven too conservative once again!

POWER SUPPLY

The Northeast, particularly New England, is relying heavily on changes in customer electric usage patterns and purchases from non-utility suppliers. Other solutions are to look beyond the borders of the region for additional resources. The remainder of the load growth is planned to be accommodated by increased purchases from Quebec, Canada.

If these basic predictions, which include the start-up of Seabrook, are fulfilled, the region will have adequate resources to serve the projected loads. We have, however, become acutely aware that all predicted events do not occur as scheduled, especially if crucial implementation actions are shared by organizations of diverse interests. Indications are that in order to provide for these uncertainties five years hence, New England should have underway, today, supply sources that would produce 25 percent more capacity than is presently identified as needed future resources. Unfortunately, utilities are unwilling to commit to new projects out of concern that regulators, emphasizing economic prudency, will unfavorably view costs incurred to pursue these "insurance premiums."

TRANSMISSION

The future of New England is already being impacted by the lack of a viable plan for bulk electric transmission service to all subregions. Transmission services are forecast to become even more limited. Instead of addressing the causes of these limitations, the region's utilities are moving toward the implementation of rules to manage the potential shortages. The municipal systems, which I represent, do not own transmission and will be most adversely affected by these rules. While the need for additional transmission capability is critical, it will not come about without the establishment of a new set of groundrules between the region's regulators (both environmental and economic) and the utility industry. The historical, unwritten regulatory compacts have been changed by recent regulatory reviews on "prudent" investments. Such reviews must not erode the industry's obligation to construct needed facilities and should allow the owners recovery of legitimate costs of maintaining a needed regional service.

In planning for the future the lack of a national energy policy is hampering the region's ability to choose appropriate power supply technologies to pursue. The issue of reliance on non-domestic sources of fuel and electricity must be addressed as a part of developing the policy.

In our view the industry component which holds the key to responding most effectively to the continuing uncertainties is a strong, reliable and accessible electric transmission system. Decisions on adding facilities to the electric transmission system must be free from the parochial interests of the host utility and local regulatory officials and evaluated from a regional and national perspective.

The location of future transmission will be influenced by the national energy policy. The Northeast's transmission corridors would expand to:

- the north, if Canadian hydroelectric imports are encouraged;
- the northeast and northwest, if Canadian nuclear imports are favored;
- the west, or southwest, if Ohio, West Virginia, Kentucky, et. al. coal resources are chosen;
- southern New England and New York, if natural gas becomes the fuel of choice;
- coastal regions of New England, if we rely on conventional powerplant technology;
- northern New England, if native renewable resources are emphasized; or
- upstate New York, if enhancements to the international boundary waters and the Niagara Project are favored.

Perceived impediments to regional transmission enhancement may require, at a minimum, solutions that will create formal interstate compacts for the regulation of bulk transmission facilities within multi-state regions and among adjoining electric regions. New utility entities, either federal, public or private joint ventures, may have to be created to implement planned transmission facilities that cross between or affect the electric service of more than one utility's service territory.

Thank you for the opportunity of incorporating these views into the hearing record.

SENATE COMMITTEE ON
ENERGY AND NATURAL RESOURCES
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STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

JAMES T. McFARLAND
COMMISSIONER

ELLICOTT SQUARE BUILDING
295 MAIN STREET, RM. 814
BUFFALO, N.Y. 14203
(716) 847-3837

THREE EMPIRE STATE PLAZA
20TH FLOOR
ALBANY, N.Y. 12223
(518) 474-8429

April 17, 1989

OFFICIAL COMMITTEE FILE
PLEASE RETURN

Senator J. Bennett Johnston
Chairman, Committee for Energy
Room 364, Senate Dirksen Building
Washington, DC 20510-6150

Dear Senator Johnston:

I would very much appreciate having a copy of the testimony of Peter Bradford at your Committee hearings of April 14th, 1989.

I would also appreciate being advised of the nature of those proceedings so I can decide whether to order the entire transcript.

In the meantime, I enclose for your interest and, if it is appropriate, for inclusion into the record of your proceedings a copy of my Dissent to the Commission's Opinion & Order of April 14, 1989 which in effect approved the Agreement for the transfer and ultimate destruction of the Shoreham nuclear facility on Long Island.

The thesis of my opposition is that the takeover and operation of a facility by the New York State Power Authority (NYPA) would be in the best interests of the ratepayers. Of course, it would also be in the national interest inasmuch as the production of 800 megawatts of energy by nuclear power would eliminate our dependence on millions of barrels of oil, half of which is imported from OPEC nations.

Also for your interest is a copy of a Press Release in support of the Power Authority takeover. It details just some of the potential savings which could result in substantial savings to the Long Island Lighting Company's ratepayers.

Unfortunately, the entire resources of the Department of Public Service and the Commission were enlisted in a justification of the Close Shoreham scenario.

Had the same resourcefulness and energy been applied to the Open Shoreham scenario, I believe there would have been considerable justification to give added support to the opinion of the Administrative Law Judge on the case, to the effect that the opening of Shoreham would be in the best long-run interest of the ratepayers.

While I would not expect the United States Senate to involve itself directly in the New York State decision-making process, nevertheless I do believe that the national interest definitely justifies an analysis of federal licensing procedures as it related to the Shoreham license.

Kindly contact me if I can be of any further value or assistance to you.

Yours truly,

JTM/bj

James T. McFarland

P.S. I have recently been alerted to the Committee's interest in the economics of opening Shoreham. To that point you may find of interest the analysis of ALJ Frank Robinson which I appended to my Dissent in a previous "Close Shoreham Opinion" because it was the only way I could get it released to the general public. References to the 1988 Lazard Freres study prepared for the Long Island Power Authority (LIPA) commence on page 17 of Judge Robinson's analysis. Keep in mind the Lazard study was attempting to justify the Authority takeover of the entire LILCO operation. This would have meant going to the market for something in the vicinity of between $7 and $9 billion worth of tax-exempt borrowing. Conversely, a takeover of just the Shoreham plant would entail going to the tax-exempt or partially tax-exempt bond market for less than half those sums, (possibly about $3 to $3.5 billion) in staggered offerings. This is very doable. The City of New York goes to the market every quarter with between $400 and $500 million worth of tax-exempt borrowings and the market eats it up.

PRESS RELEASE (April 10, 1989)

PSC Commissioner James T. McFarland, who dissented from the PSC's decision of April 5, 1989 granting the Long Island Lighting Company rate increases and authorizing its sale of the Shoreham nuclear power plant, issued the following statement:

The PSC has just voted to give the ratepayers on Long Island the dubious distinction of paying what will reputedly be the highest utility rates in the country. And Long Island still does not have enough energy to meet its needs!

One Commissioner called this decision to close Shoreham and raise rates "folly". It is worse than that. It is madness. It is the consequence of a very serious but not irreparable rupture in the political system in the State of New York, namely, the politicization of the utility regulation process.

There is a solution, however, which has worked before:

A New York Power Authority takeover and operation of Shoreham

The Power Authority already operates two nuclear plants successfully. What's the matter with operating another?

My rough estimates indicate that Power Authority ownership can produce operational savings of as much as $450 to $500 million a year. These will translate into very substantial rate savings for Long Islanders, instead of what this Commission and our Governor gave them.

Consider these potential savings:

...No federal income tax - estimated savings $50 million a year

...No dividends - estimated savings $100 million annually

...No real property taxes (except as negotiated) - estimated savings $75 million annually

...Nuclear fuel cost savings over the cost of oil - estimated savings approximately $100 million a year

...Elimination of rebates to customers for energy conservation and reduced consumption - estimated savings $30 million annually

...Elimination of off-Island energy purchases - estimated savings approximately $30 million annually

...Tax-exempt and partially tax-exempt borrowing costs of the Power Authority - estimated savings $80 million to $100 million per year for 30 years.

...Deferral or elimination of three new 300 megawatt coal- or oil-fired plants in the out years (1997-2002) - estimated savings in carrying charges of $166 million on almost $1 billion of construction costs in today's dollars

...Cheaper electric cost to municipalities - reduced taxes or lower tax increases for Long Island taxpayers

...Unquantifiable but obviously desirable environmental benefits from nuclear combustion over fossil fuel consisting of less lung disease, personal injuries, property damage, death, to say nothing of environmental damage from possible oil spills, global warming, acid rain, etc.

To get a more accurate picture, the Power Authority should immediately commence the necessary economic analysis to support this initiative.

In the absence of constructive negotiations with the Governor on such a Power Authority takeover, the Legislature itself can authorize and direct the Power Authority to carry out the legislative will in this regard.

Of course, this means Shoreham will operate. Thus the question for Long Islanders becomes whether they care more about what their energy costs than where it comes from.

Every other geographic area of the state benefits from low-cost energy provided by the New York Power Authority...except Long Island and Queens. Why? Better still...why not?

The Commission's formal Decision and Order is expected to be released later this week.

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

CASE #29484 - Proceeding on motion of the Commission as to the
#84-E-084 rates, charges, rules and regulations of Long Island Lighting

JAMES T. McFARLAND, Commissioner, dissenting:

The best disposition of this so-called "Shoreham deadlock", as far as the LILCO customer and the economy of Long Island is concerned, would be for the New York Power Authority (NYPA) to buy out Shoreham and operate it. NYPA is a seasoned operator of two nuclear plants, as well as other energy facilities. It has an excellent track record for safety.

Power Authority ownership and operation would allow Long Islanders to get the benefit of the tax-exempt advantages provided by the Authority and which are enjoyed by all the other geographic areas of the state...except Long Island. My rough estimates are that this alternative would provide at least $450 to $500 million worth of operational savings a year. Not rate increases, savings. This would translate into substantial rate savings for the consumer. Instead we are saddling LILCO's customers with a decade-long burden of substantial rate increases together with an energy supply system of questionable reliability.

Why? What is this "Shoreham deadlock"? It is nothing more than a euphemism for the consequences of the political exploitation of anti-LILCO sentiment and the fear on the part of some uninformed people about the safety of nuclear power. Those consequences are a severe energy crisis facing Long Islanders and their economy and the near bankruptcy of the utility that serves them. These consequences have been produced by nearly five years of litigation, confrontation and vigorous opposition to the NRC licensing process. This Commission could have dealt directly and constructively with these problems but chose not to, deferring instead to public opinion and the political process.

Is Shoreham unsafe? There has never been one word of concern on this Commission that an operational Shoreham would present an unreasonable safety risk to the people on Long Island. Not one Commissioner ever mentioned it. You can search the record of all the proceedings in vain for any evidence on the subject. We are even privileged to have as our Chairman an individual who gained considerable knowledge and experience about the operation of America's nuclear power program during five years as a member of the Nuclear Regulatory Commission (NRC). He has not contended the plant is unsafe. Nor, as I observed, has any other Commissioner.

Furthermore, it is the NRC to whom Congress has entrusted the solemn duty and grave responsibility of insuring our nuclear power plants operate safely and efficiently. Not this Commission. If licensed by the NRC, Shoreham will be no more of a safety risk than any of the six other nuclear power plants licensed and operating in the State of New York.

The NRC will issue a license only after it has been assured and satisfied that a safe evacuation of an area within 10 miles of the plant can be carried out if ever required. All of Long Island does not have to be evacuated. Nor does all of Westchester nor all of Oswego County or Monroe County or wherever else a nuclear power plant is located in this state. It is deceptive and irresponsible to suggest otherwise to the Long Island citizens.

Nor can the plant explode. Its uranium is not enriched sufficiently to support a nuclear explosion. In the event of a fire or meltdown similar to Chernobyl or Three Mile Island, the plant has a 4 ft. thick re-enforced concrete containment structure which would, as it did at Three Mile Island, protect the public from any radiation dangers.

No, the safety of Shoreham is not the issue here. The real issue is whether this Commission should be guided in its utility regulating functions by public opinion, in this case, erroneous, misguided and false public opinion. I say not. I am sure my colleagues would agree that ratemaking by public referendum would be folly. Where, I ask, is the distinction in this case?

On at least two occasions an experienced and knowledgeable Administrative Law Judge has found that, in the long term, the opening and operation of Shoreham would be in the best interests of Long Island and its ratepayers. His latest discussion is attached.

I am certain that if our intrepid and able Staff had dedicated its energies and resourcefulness to drafting an open-Shoreham scenario, the results ratewise and energywise would have been better than this Decision. At the very least we would have had Shoreham's 809 megawatts, possibly even on time for this summer's peaks. But alas, it was directed to justify the close-Shoreham goal.

The bitter irony is that neither this Commission nor those interests responsible for the five years of delay, uncertainty, energy crisis and fiscal calamity will bear any of the financial burden of the "Shoreham deadlock". That burden will fall wholly on those who can best be described as innocent bystanders to this sorry Shoreham saga. It is they who will finance every extra penny this Settlement will cost and endure every privation the closing of Shoreham might produce, even the possible loss of jobs and security. I am referring, of course, to the Long Island citizen and ratepayer.

The final irony is that the Consumer Protection Board reportedly stated that, "The Cuomo administration's position is that the LILCO-PSC Agreement is much too generous". Ah, politics. Now it is the PSC's Agreement! If the Governor is against these rate increases which are necessary to persuade LILCO to abandon Shoreham, does that mean he is now in favor of Shoreham's operation? Could be. On the premise that anything is possible in politics, I intend to take up with the Governor and the Legislature my proposal that the best deal for the ratepayers and the economy of Long Island would be for the Power Authority to take over and operate the Shoreham facility.

In the meantime, I must say I dissent from all the Orders contained in this Decision, particularly the approval of the Agreement of February 28, 1989, approval of the asset transfer agreement, and the Commission's failure to make permanent the temporary rate increases of February 18, 1989. I believe our own Regulations pertaining to the procedure in rate cases were not complied with. Neither was Part 31 relating to the procedure for Commission approval of asset transfers by utilities. Nor was any waiver of these Regulations granted or petition for any waiver filed with this Commission.

In consequence, I believe this Decision to be arbitrary, capricious and unreasonable.

DISCUSSION

We have reviewed above positions of the parties and resolved some of the specific concerns they raised. We now turn to a broader analysis of the more fundamental issues involved in the whole Shoreham problem.

Adoption of Rate Plan

We now have before us a second effort to break the Shoreham deadlock. Continuation of that deadlock, as we observed in Opinions 87-26 (p. 5) and 88-29 (pp. 46-47), jeopardizes the goal of effective utility regulation (assurance of a reliable and reasonably priced power supply); consumes management's attention; deters effective development of alternative supplies, including energy conservation and demand side management; and poisons the utility's relations with consumers and government officials. And the prolonged uncertainty bred by the deadlock imposes costs on all -- ratepayers, investors and the Long Island community as a whole. The public interest requires an end to this seemingly intractable controversy.

We begin our analysis by reiterating that the 1988 settlement provided an attractive resolution of the Shoreham deadlock. We recognized in Opinion No. 88-29 (p. 52) that rate increases on Long Island were inevitable under any set of circumstances. In the context of our obligation to determine just and reasonable rates, we found that the 1988 settlement was clearly superior to other options, such as a LIPA takeover, a LILCO bankruptcy, Shoreham operation and/or mothballing and rejection of the settlement. Based upon our careful review of the record and the alternatives, we concluded that the settlement -- and its essential terms, including the closing and transfer of Shoreham, the three-year fixed rate increases, the creation of the FRA, the equity return cap, the commitment to alternative energy plans and the resolution of litigation -- was clearly in the public interest.

The 1988 settlement lapsed because, by its terms, it required legislative approval, which was not forthcoming. We cancelled tariff changes designed to implement the 1988 settlement by order issued December 1, 1988. As a result of the 1988 settlement not becoming effective, we later invited the principal parties -- LILCO, LIPA and NYPA -- to reaffirm the 1988 settlement.[1] Although our invitation did not lead to a reaffirmance in the time frame suggested, it demonstrated our continuing commitment to the basic terms of the 1988 settlement. And, on February 16, 1989, we granted LILCO a temporary rate increase of 5.4%, which was comparable in result to the 1988 settlement's provision for a 4.9% increase effective December 1, 1988.

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[1] See, Statement of the New York Public Service Commission on the LILCO Request for Temporary Rates, dated December 28, 1988.

On February 28, 1989, Governor Cuomo and LILCO signed an agreement that preserved the essential non-ratemaking features of the 1988 settlement that we had earlier carefully reviewed and approved. If approved by other key principals to the 1988 agreement (LIPA, NYPA, LILCO and us) it revives the framework for transferring and closing Shoreham and for ending related litigation. Under the terms of the February 28, 1989 settlement, we have been asked to promptly determine just and reasonable rates for LILCO. The parties anticipated that we would ensure that future impacts on subsequent rates are minimized to the greatest possible extent.

The record before us presents on ample basis for a rate plan that will establish just and reasonable rates for LILCO through December 1991, and a conceptual framework for future ratemaking. The rate plans advanced by the parties, notably LILCO, staff and CPB, suggest near-term rate increases and long-term ratemaking principles designed to limit rate impacts on consumers without sacrificing LILCO's eventual financial recovery.[1] Therefore, we can again fashion a rate plan, proceeding from our earlier decision, that will facilitate the resolution of the Shoreham controversy.

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[1] We note that the three rate plans offered here by the parties who have been the main adversaries in LILCO rate cases in the past are substantially similar, reflecting broad support for the principles that should be employed in establishing a reasonable rate plan. The proposals are similar in concept as well to the plan we approved in 1986 to mitigate rates if Shoreham went into service. Case 28252 - Long Island Lighting Company - Shoreham Ratemaking Principles (Opinion No. 86-14, issued June 12, 1986).

Some of the parties arguments suggest that the bifurcation of the process employed in this phase of the case to break the Shoreham deadlock means that we must start anew on all rate issues. The parties objecting to the adoption of a rate plan and calling for further hearings, however, fail to recognize that the issues of Shoreham's closing and decommissioning on the one hand, and the proper level of LILCO's rates on the other, are again inextricably linked, this time in a two-step process. LILCO has agreed, in the February 28 settlement, to abandon Shoreham, provided LIPA and NYPA reaffirm their previously agreed upon roles and provided that we determine just and reasonable rates. We could not, under our statutory authority, bring about the transfer and closing of Shoreham as envisaged in the February 28 agreement. And, as we foresaw in Opinion No. 87-26 (p. 8), LILCO cannot be expected to "abandon Shoreham if doing so precipitates its own demise." In Opinion No. 88-29, we estimated LILCO shareholder losses at $3.3 billion and observed (p. 53):

> The higher financing costs, probable maintenance and service cuts, morale problems and general weaknesses of a utility kept anemic by inadequate rates will actually cost the customers more in the long run than a sensibly paced return to reasonable financial health. (Id.).

Thus, it should have come as no surprise that LILCO reserved the right to "veto" the February 28 agreement if the necessary approvals and a reasonable rate plan were not in place by April 15.[1] In essence, although the approval process has been changed, all of the parties having specific responsibilities in the 1988 settlement must again act to bring to fruition the February 28 agreement.[2]

Therefore, the proposed resolution of Shoreham is not materially different from that contemplated in the 1988 settlement.[3] Accordingly, our March 6 Order (p. 3) establishing this phase of the proceedings indicated that the "rate determinations previously made in Opinion No. 88-29 would provide an appropriate point of departure" and advised the parties to "address, among other things, any changes in circumstances that may have an impact on...[those] determinations...". There, in evaluating rates under the 1988 settlement, we had found (p. 52):

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[1] The company, of course, has since agreed to be bound by Staff's rate moderation plan as though it were a fully executed agreement.

[2] We note that, although the Chairman of the Urban Development Corporation, the Executive Director of the Consumer Protection Board and the State Energy Commissioner were signatories to the 1988 settlement, they did not have specific duties in its implementation.

[3] Of course, one key difference is the absence of legislative approval; if anything, this feature of the new plan removes a potential stumbling block. But for that provision in the 1988 settlement, a rate plan substantially identical to the ones before us for review today would in all probability have become effective.

> [t]he settlement does entail increases above present rates, but it cannot be stressed too strongly that comparing the settlement to present rates is meaningless. Rate increases are inevitable on Long Island, whether or not Shoreham runs, whether LILCO goes bankrupt, and whether there is a LIPA takeover. Predictions as to which alternative will be least expensive for ratepayers depend heavily on many future unknowns; but based on our evaluation, the settlement benefits ratepayers. It protects them from rate increases any greater than 5.0% for the first three years; LILCO is foregoing its claim to recovery on $380 million of investment (in addition to the $1.4 billion of Shoreham investment we found to be imprudent); the company's FRA recovery would be phased in according to a schedule emulating that which we earlier prescribed for a Shoreham phase-in; and the company is accepting an equity return cap. Furthermore, the rate increases under the settlement are projected to approximate inflation, so that the real price of electricity would hardly increase at all over the decade covered by the settlement (and rates are actually projected to decrease between 1988 and 2002).

Thus, our March 6 Order properly put all parties on notice as to the proper focus of the remanded proceedings. They were not intended to provide a de novo review of all LILCO rate issues. All interested parties had a fair opportunity to review and cross-examine testimony on the underlying rate assumptions of the 1988 settlement in hearings conducted in

July, 1988. Because most of these assumptions were used again in the staff, LILCO and CPB rate proposals here, a further opportunity to challenge them was available to interested parties in hearings held in March, 1989 in the current phase of this case. As we turn now to the rate issues developed at the recently concluded hearings, we shall use as a backdrop our prior approval of the substantially similar Shoreham settlement as well as our previous findings on "just and reasonable rates."

For their part, LILCO, staff and CPB offered rate proposals and supporting testimony and exhibits of expert witnesses that embodied our basic findings in Opinion No. 88-29 and explained differences in rate levels and projections. Other parties, however, essentially ignored our findings in Opinion No. 88-29 and either offered detailed rate proposals (Suffolk, for example) or discrete rate measures in the context of an alternative resolution of Shoreham (LIA, Grumman and 655 Associates). These latter parties have discounted the valuable and comprehensive record previously established in this proceeding, upon which we relied in Opinion No. 88-29 and upon which we rely in this Opinion. They have demonstrated no sound reason why the cumulative record that has been established in this proceeding to date should not be relied upon at this juncture. Indeed, treatment of rate issues de novo would further prolong the Shoreham deadlock, which has been extremely costly to LILCO's ratepayers and stockholders. It has brought the company to the verge of bankruptcy and threatened the provision of safe and adequate service to its customers. Ratepayers have been burdened with extraordinary rate increases associated with construction of Shoreham and will bear many of the costs attributable to delay in resolution of the controversy. It is in everyone's interest that these matters be finally resolved.

Turning to the alternative rate proposals offered here, as we discussed above, the principal differences between the staff[1] plan and the CPB plan concern the one-month timing difference for the next two rate increases, a minor difference in the amount of those increases and disagreements over dividend payment policies. Both plans purport to show slightly lower rate increases over the planning horizon, but each plan has incorporated certain rate-reducing assumptions that were not made in the 1988 settlement projections. For example, staff's projections now reflect nominal savings after 1991
associated with the management audit recommendations of $185 million and the use of lower cost NYPA debt (rather than LILCO financing) for new plant construction. CPB's projections reflect also the enactment of legislation

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[1] The discussion here will not refer to LILCO's plan because the company now supports Staff's.

limiting gross receipts taxes and the extension for five years of $100 million of IDB financing; CPB would also freeze rates in the final year (1999) of the study period. Both parties incorporate, for the purpose of estimating future rate levels, the payments to customers LILCO has agreed to make in settlement of the RICO litigation. All of these factors tend to dampen projected rate increases compared to the 1988 settlement.

The fact remains, however, that projections over a period of 10 or more years are inherently uncertain, and actual results will be influenced by events we can neither predict nor control. Our review of these plans leads us to conclude that, on balance, they are substantially similar to each other (except for a few alternative input assumptions) and similar also to the rate projections underlying the 1988 settlement. In short, despite the parties' best efforts to convince us otherwise, we do not discern material differences in the "old" and "new" rate projections.

This conclusion underscores the need to resolve the issues affecting the near-term rate proposals. In this context we note initially that the passage of time has hurt LILCO's financial parameters. Whereas the 1988 settlement was expected to produce cash coverage of 1.4 in 1989 and 1990 and 1.5 in 1991, the new plans project annual coverages of 1.2, 1.3 and 1.4 for this period. Thus, LILCO faces a more precarious near-term financial outlook than it did last year, which suggests that LILCO's financial recovery (and the concomitant cost savings to ratepayers) will be postponed. It is of utmost importance that the near-term rates we set here arrest LILCO's deteriorating financial position without unduly burdening ratepayers.

For these reasons, we favor staff's rate plan over the CPB's. Although the one-month timing difference and the .25% rate difference increase are relatively minor, LILCO's prompt return to an improving financial condition should not be jeopardized by small adjustments that may be counterproductive. As noted above, the passage of time has eroded LILCO's financial position, and continued postponement of financial recovery eventually causes higher rates to consumers. Moreover, staff's plan produces results closer to those obtained in the 1988 settlement, which we endorsed.

As for CPB's proposed dividend restriction, as we observed above such a prohibition could be self-defeating. As a rule, we have not attempted to restrict management's decisions on whether to pay out dividends, except in extreme situations where the dividend payment practices directly compromised the utility's ability to carry out its public service obligations.[1] The type of management disregard of its responsibilities that would lead us to control dividends is simply not evident here. Furthermore, without attempting to divine the precise impact of such a restriction on LILCO's ability to achieve an investment grade rating on its bonds, we believe such a restriction would be viewed in the financial community as a clear indication of a financially-debilitated, inadequately managed utility. Therefore, while we will carefully monitor LILCO's payout practices, we find no basis on this record for adopting CPB's proposal.

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[1] Public Service Comm. v. Jamaica Water Supply Co., 54 A.D.2d 10 (3rd Dept.), affirmed, 42 N.Y.2d 880; cf. Case 29332, Wanakah Water Company - Water Treatment Facility, Opinion No. 87-9, issued May 11, 1987.

Two additional features of staff's plan merit comment. First, we wish to make clear that under no circumstances would we permit ratepayers to bear the costs of the customer payments agreed to by LILCO in settlement of the RICO litigation. These costs must be charged to shareholders, as contemplated by ¶6 of staff's Rate Moderation Agreement. Second, as the Agreement explicitly notes (¶'s 1(a), 8 and 9), the rate increases (including the recently authorized temporary rate increase of 5.4%) will not be made permanent until all required approvals -- including that of LILCO shareholders -- are received. The rate measures approved here are based on the specific resolution of Shoreham issues proposed; we reserve our authority and discretion to review LILCO rate issues under different factual circumstances.

On balance, therefore, we find that Staff's proposal best accomplishes the twin goals of mitigating rate increases and gradually restoring LILCO's financial health. This Opinion and Order will permit LILCO to file tariffs for two additional rate increases of 5% -- on an average cents per kwh basis including fuel -- to become effective on December 1, 1989 and December 1, 1990, respectively. For rate years beginning after November 30, 1991, we retain the flexibility to adjust rates as we see fit, consistent with the ratemaking principles adopted here. Consistent with Opinion No. 88-29 (pp. 38-40), we shall review rate design issues before the rates become effective and we may schedule hearings to assist our review.[1]

Objections to the Rate Plan.

In this section, we will consider the general points made by parties opposing the rate plan; we have previously considered and resolved many of their suggested specific alternative rate measures in previous sections.

These criticisms fall into two broad categories: those that imply that adoption of a rate plan somehow eliminates -- or at least denudes -- our responsibility to set just and reasonable rates; and those that either implicitly or explicitly promote Shoreham operation and/or mothballing.

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[1] The ordering paragraphs specify the details for implementing the approved rate plan.

The first argument proceeds on the premise that we have somehow abdicated our ratemaking responsibilities in allowing the two additional fixed rate increases and that we have effectively guaranteed annual rate increases of up to 5% (and prejudged rate issues) for the remainder of the 1990's.

Our decision here sets just and reasonable rates at specific levels through December 1991, and establishes a framework for rate decisions beyond that date. The near-term rate increases include significant ratepayer protections -- LILCO is limited to two additional increases in overall electric revenues of 5%, and there is a total cap on equity earnings more than 50-70 basis points above the allowed returns. We have retained our authority to examine the prudence of all capital additions and expenditures in this period and we may defer rate recognition of extraordinary items. We have established a LILCO Rate and Power Supply Task Force that will carefully monitor these vital features of LILCO's operations. Indeed, the near-term increases we adopt here are nearly identical in concept to the multi-year rate plans (second/third stage filings, settlements, moratoriums, etc.) that we have approved for many utilities over the last several years.

Second, our decision here represents a beneficial tradeoff between limited, short-term rate increases and greater uncertainty and litigation over the Shoreham issues. By accepting staff's proposed rate plan, we are reducing the uncertainty -- and cost -- that continued litigation promises.

It bears noting that one of the principal forces exerting upward pressure on LILCO's rates is the FRA, the balance sheet item representing a discounted stream of revenues necessary for LILCO's financial recovery. Under either the 1988 settlement or the plan adopted here, this feature alone -- i.e., excluding all other factors (construction, fuel, taxes, etc.) affecting rates -- would require more than 5% rate increases in the near-term in the absence of rate moderation measures. Thus, in order to limit the increases to 5% it is necessary to defer LILCO's recovery of permitted revenues through the RMC component; this feature helps to constrain rate increases and to eliminate abrupt rate changes. We expect to examine thoroughly LILCO's calculation of its RMC balances, as well as its actual earned returns, and make whatever adjustments are necessary to protect ratepayers from improper charges or imprudent actions.

This decision, moreover, does not prejudge rate issues or guarantee specific rate increases in the out years of the plan.[1] Instead, we are adopting rational ratemaking principles to guide us in these years,[1] based upon long-term forecasts of the utility's revenues and expenses. The target rate increases are not cast in granite, and we will render rate decisions in the out years based upon our thorough review of the then-relevant circumstances.

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[1] Of course, once we have permitted creation of the FRA and established its amount, we do not plan to reconsider that

The second general criticism of parties opposed to the plan echoes the above concerns, but does so in support of an entirely different alternative -- the operation (or at least preservation) of Shoreham. The proponents would extend the hearing process to support the "Shoreham-in" scenario; yet they oppose as too costly the rate plans presented by staff and CPB.

The "Shoreham-in" scenario is indeed incompatible with either the 1988 settlement or the February 28 settlement, and the record here and the record supporting Opinion No. 86-14 demonstrate that this option would likely lead to larger rate increases for at least 10 years. The prospect of squeezing further rate concessions from a utility that would be expected to operate a costly nuclear plant in a hostile environment is untenable and frightening. This

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decision in every rate case. We would, however, evaluate well-reasoned proposals for faster or slower recovery of it, adjustments to the RMC and the like.

[1] In this sense, our conceptual framework is identical to that set forth in the Shoreham Ratemaking Principles decision (Opinion No. 86-14).

option would necessarily extend the Shoreham controversy and would breathe new life into the litigation sought to be resolved by the February 28 settlement. Therefore, while the licensing of Shoreham appears closer now than it did last year, the finding we made in Opinion No. 88-29 (p. 49) is still apt:

> However, if the settlement is rejected, the only certainty would be years of litigation, to which Long Island's energy and economic future would be hostage. Shoreham's ultimate fate would depend not only upon the Nuclear Regulatory Commission, but also upon the courts, the results of LIPA takeover efforts, and indeed, the experience of all other U.S. reactors.

In conclusion, there is no plausible basis for withholding action now on the Shoreham settlement, because the opportunities for achieving lower rates in the next decade with Shoreham in-service appear to be nil.[1]

Because of the pressing need to resolve promptly the issues raised by the February 28 settlement and related rate matters, as detailed above, we find that immediate adoption of this Opinion and Order is necessary for the preservation of the general welfare and that compliance with the advance notice and comment requirements of Section 202(1) of the State Administrative Procedure Act (SAPA) would be contrary to the public interest. Accordingly, we shall adopt this Opinion and Order under the emergency provisions of Section 202(6) of SAPA.

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[1] Of course, if the February 28 settlement does not become effective and the NRC grants LILCO an operating license, we may well have to revisit this very question.

The Commission Orders:

1. Subject to the foregoing discussion and to the conditions set forth herein, the Settlement Agreement -- LILCO Issues, dated February 28, 1989 ("February 28 Settlement"), the Rate Moderation Agreement proposed by staff and agreed to by Long Island Lighting Company (Exhibit 610; "Rate Moderation Agreement"), and the Amended and Restated Asset Transfer Agreement filed March 31, 1989 are approved.

2. Long Island Lighting Company is directed to file proof of the approval by its Board of Directors of the February 28 Settlement and the Rate Moderation Agreement not later than April 17, 1989.

3. Long Island Lighting Company is directed to file proof, as soon as practicable, of the approval by a majority of its shareholders of the February 28 Agreement and the Rate Moderation Agreement.

4. Long Island Lighting Company is permitted to file revisions to its tariff, to take effect on December 1, 1989 and December 1, 1990, in an amount and manner consistent with the foregoing. Each set of tariff revisions shall be filed at least 90 days before their effective date and shall

be designed to increase annual electric revenues on a cents per kilowatt hour basis including fuel by 5%. Long Island Lighting Company shall contemporaneously file copies of such tariff revisions on all parties to this proceeding. The company shall fully explain and justify any proposed changes in revenue allocation or rate design. The Commission may seek comments from the parties or schedule hearings on revenue allocation or rate design issues. The tariff amendments shall not take effect until approved by the Commission.

5. The temporary rate increase authorized in the Order Authorizing Temporary Rates, issued February 16, 1989 in these proceedings, shall not become permanent until the February 28 Settlement has become effective and Ordering Paragraphs 2 and 3 herein have been complied with, unless otherwise ordered by the Commission. Ordering Paragraphs 1-5 of the Order Authorizing Temporary Rates remain in full force and effect.

6. The rate increases authorized in Ordering Paragraph 4 herein are conditioned upon the February 28 Settlement becoming effective and compliance by the company with Ordering Paragraphs 2 and 3 herein.

7. Long Island Lighting Company is authorized to file on not less than one day's notice, to take effect on April 15, 1989, revisions to its tariff and its fuel cost adjustment, to incorporate the changes permitted in

paragraphs 1(b) and 1(f) of the Rate Moderation Agreement. The requirement of Section 66(12) of the Public Service Law and 16 NYCRR 136.70 that newspaper publication be completed before the effective date of the amendment is waived, but Long Island Lighting Company is directed to file with the Commission, on or before June 1, 1989, proof that a notice to the public of the changes contained in such amendments and its effective date has been published once a week for four successive weeks in newspaper(s) having general circulation in the area affected by the amendments.

8. As described in the foregoing Opinion, the company is directed to institute deferral accounting for the following items:

a. The "Base Financial Component" of the "Financial Resource Asset" shall be deferred if recording this item on the balance sheet as a plant account is not permitted by the SEC or the FERC.

b. The "Rate Moderation Component" of the "Financial Resource Asset".

c. Any equity earnings in excess of the "dead band" provisions of the Rate Moderation Agreement.

d. Any decrease in fuel costs below the fuel component included in base rates.

e. Any Federal income tax benefits of the abandonment loss deduction which are not allocable to stockholders pursuant to the Commission decision in Case 27563, Opinion No. 85-23.

f. Any amounts received by LILCO from a judgment or settlement of litigation relating to Shoreham or other matters described in the February 28

Settlement or the Rate Moderation Agreement.

g. Actual costs incurred attributable to the decommissioning and/or dismantling of Shoreham.

In the event FERC disapproves the recording of item "a" above in a plant or other balance sheet account, the company must file a proposal with the Director of the Office of Accounting and Finance for his approval designating the account to be used. For items b through g, the company is authorized to use the following accounts, as appropriate, to defer the principal and Federal income tax effects of the above items: Account 186, Miscellaneous Deferred Debits; Account 253, Other Deferred Credits; Account 190, Accumulated Deferred Income Taxes; and Account 283, Accumulated Deferred Income Taxes -- Other. The amounts deferred under these plans shall be recorded in separate subaccounts so as to remain readily identifiable. All deferrals and amortizations shall be subject to audit and to review and acceptance by the Director of the Office of Accounting and Finance. Any matter concerning the deferrals and/or amortizations which are unacceptable to the Director of the Office of Accounting and Finance shall be presented to the Commission for resolution.

9. Thirty days after the February 28 Settlement becomes effective, the company shall submit for review by the Director of the Office of Accounting and Finance its detailed accounting proposals for the following items:

a. The Shoreham revaluation and write-off, including the Federal income tax benefit deferral and allocaiton.

b. The establishment of the "Base Financial Component" of the "Financial Resource Asset".

c. The Bokum write-off.

d. The Jamesport/Deferred Tax (excess) netting.

e. The Excess Earnings write-off ($16 million).

10. The company, staff and other interested parties are directed to attempt to resolve any differences or disagreements concerning the company's Incentive Ratemaking for DSM/Conservation Programs, filed March 24, 1989, so that the Commission may evaluate such proposal by May 15, 1989, as contemplated by paragraph 2 of the Rate Moderation Plan.

11. Cases 29029, 28204, 28704, 29664 and 29301 are closed.

12. Adoption of this Opinion and Order on an emergency basis pursuant to Section 202(6) of the State Administrative Procedure Act is necessary to preserve the general welfare for the reasons noted above.

13. These proceedings are continued.

By the Commission,

(SIGNED)

JOHN J. KELLIHER
Secretary

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

CASES 29484 and 88-E-084 - LONG ISLAND LIGHTING COMPANY - Electric Rates

ERRATA NOTICE

(Issued December 1, 1988)

In the Opinion and Order issued in this proceeding on November 18, 1988, a number of printing errors appeared in the paragraph that appeared at the bottom of page 6 and at top of page 7 of Commissioner McFarland's dissenting statement. The paragraph should have read as follows:

> State and local sales taxes, for instance, on all industrial and commercial utility bills amount to 7% in Suffolk and 8% in Nassau. (The state 4% sales tax does not apply to residential bills.) Suffolk County imposes a 1% sales tax on residential bills; Glencove 3%; New York City 4%. The state tax on gross utility company receipts is 3.75%. In addition, local gross receipt taxes average .27% on electric operations. Then the Metropolitan Transportation Authority adds another .6% to utility bills. Also, there is a variety of taxes assessed on the oil LILCO uses to fuel its generators. There is the New York State petroleum gross receipts tax on #6 oil of 2.75% that in 1988 cost LILCO an estimated $450,000. There is also the New York State oil spill tax of .075 cents per barrel which cost LILCO an estimated $1,314,822 in 1987. Add to that the high local property taxes levied on LILCO (all paid by the ratepayers) and one sees a vital area for governmental action to remedy high utility bills.

JOHN J. KELLIHER
Secretary

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

OPINION NO. 88-29

CASES 29484 and 88-E-084 - LONG ISLAND LIGHTING COMPANY - Electric Rates

OPINION AND ORDER APPROVING SETTLEMENT AGREEMENT

Issued and Effective: November 18, 1988

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STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

APPEARANCES

FOR THE NEW YORK STATE DEPARTMENT OF PUBLIC SERVICE, PUBLIC SERVICE COMMISSION:

Richard C. King, Esq.
Three Empire State Plaza
Albany, NY 12223

FOR LONG ISLAND LIGHTING COMPANY:

Victor A. Staffieri, Esq.
Joy A. Johnson, Esq.
Robert Fernandez, Esq.
175 E. Old Country Road
Hicksville, NY 11801

FOR THE NEW YORK STATE CONSUMER PROTECTION BOARD:

Joel Blau, Esq.
Alfred Levine, Esq.
99 Washington Avenue
Albany, NY 12210

FOR SUFFOLK COUNTY:

Hill, Betts & Nash
1 World Trade Center
New York, NY 10048
(by Gregory O'Neill, Esq. and
Kenneth L. Robinson Esq.)

FOR IN-NOVO ENGINEERING AND DEVELOPMENT COMPANY:

Howard Rapaport
210-09 67th Avenue
Bayside, NY 11364

PRO SE:

Herbert Jaffe
57 Elinor Place
Freeport, NY 11520

FOR MULTIPLE INTERVENORS:

White, Brenner & Feigenbaum
One Steuben Place
Albany, NY 12201
(by Robert M. Loughney, Esq.)

FOR LONG ISLAND POWER AUTHORITY:

Stanley Klimberg, Executive Director
114 Old Country Road
Mineola, NY 11501

FOR THE NEW YORK STATE DEPARTMENT OF LAW:

Adrian Johnson, Esq.
Alfred Nardelli, Esq.
Room 3-120
120 Broadway
New York, NY 10271

FOR LONG ISLAND CITIZENS IN ACTION:

Marge Harrison
1845 Voshage Street
Baldwin, NY 11510

FOR SHOREHAM-WADING RIVER CENTRAL SCHOOL DISTRICT:

Lewis & Greer, P.C.
Box 2990
Poughkeepsie, NY 12603

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

COMMISSIONERS:

Peter Bradford, Chairman
Harold A. Jerry, Jr., concurring
Gail Garfield Schwartz, concurring
Eli M. Noam
James T. McFarland, dissenting
Edward M. Kresky, concurring
Henry G. Williams

CASES 29484 and 88-E-084 - LONG ISLAND LIGHTING COMPANY - Electric Rates.

OPINION NO. 88-29

OPINION AND ORDER APPROVING SETTLEMENT AGREEMENT

(Issued and Effective November 18, 1988)

BY THE COMMISSION:

INTRODUCTION

On June 16, 1988, Long Island Lighting Company, after extensive negotiations, signed a settlement agreement with the State of New York,[1] PSC trial staff and the Long Island Power Authority, resolving the status of the Shoreham Nuclear Power Plant, and addressing as well future rate levels and power supply.[2]

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[1] Including the Governor, the New York Power Authority, the Consumer Protection Board, the Urban Development Corporation and the State Energy Commissioner.

[2] The settlement consists of three documents, a "Settlement Agreement - LILCO Issues" (appended hereto), an "Asset Transfer Agreement" between LILCO and LIPA, and a "Memorandum of Understanding Concerning Proposed Agreements on Power Supply for Long Island" between LILCO and the New York Power Authority.

The settlement will not become effective unless, inter alia, we approve it.[1] Our order of June 23, 1988, cast the settlement as a proposed resolution of LILCO's pending rate application[2] (together with various related motions).[3] Parties were directed to submit prefiled testimony by July 1, 1988; public statement hearings were held in Hauppauge on July 6 and in Mineola on July 7; and evidentiary hearings in Mineola, before Administrative Law Judge Frank S. Robinson, on July 11, 12 and 27.[1] The record has been certified directly to us for decision.

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[1] The settlement originally required approval by September 22. Because of slippage in the date for the LILCO stockholder meeting to vote on the settlement, its provisions allow us to extend the September 22 date to November 18, and we have done so.

[2] We also, however, are called upon to approve the proposed transfer of Shoreham to the Long Island Power Authority, under Public Service Law § 70.

The agreement (paragraph 11) further requests us to expressly agree that we will review and act upon any power supply agreement between LILCO and NYPA within three months of submission.

The company also requests a waiver of the requirements concerning the submission of testimony in major rate proceedings, set forth in our 1977 test period Policy Statement and in the NYCRR.

Consistent with our decision to approve the settlement, we assent to the foregoing three items.

[3] The motions were listed in the June 23 order. In addition, we are including a July 27, 1987 CPB petition concerning LILCO's payments to Nofziger & Bragg (Case 29664).

Briefs and replies were submitted by staff, LILCO, CPB and Suffolk County. A rate design issue raised by In-Novo Engineering and Development Company was briefed separately, with replies by staff and LILCO.

SETTLEMENT TERMS

Under the settlement, the Long Island Power Authority would buy Shoreham for $1, and oversee its decommissioning,[2] which will be carried out by NYPA. LILCO would pay for the decommissioning, and would recover the expenditure through rates, amortized over 40 years. Under the settlement, the amount could reach up to $440 million; it could also be much lower. Pending the actual transfer to LIPA, LILCO is barred from operating the plant.

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[1] Staff, CPB and LILCO sponsored testimony supporting the settlement. Suffolk County presented testimony saying that a LIPA takeover would be cheaper but expressly took no position on the settlement; staff and CPB sponsored rebuttal. Suffolk was allowed to enter oral surrebuttal, and staff and CPB followed with oral rejoinder.

[2] LILCO's witnesses testified that Shoreham's conversion to burn fossil fuel would not be economical, and it would be better to tear down the plant and start fresh. Mothballing too, LILCO said, would not make economic sense unless there were a reasonable expectation of operating the plant at some point; mothballing is very expensive, primarily because of the staffing that would have to be maintained, and the costs of keeping current with NRC requirements.

The plan prescribes electric rate increases of 4.9% on December 1, 1988; 5% on October 1, 1989; and another 5% on October 1, 1990, with annual rate increases targeted at 4.5 to 5% annually from 1992 to 1998,[1] but subject to our approval.[2] The rate increases for the first three years are "locked in" under the agreement; however, if material unforeseen changes occur, their impact on rates can be deferred and recognized subsequently. We may authorize higher rates during the three years only in the event of a bankruptcy or imminent bankruptcy.

The stated rate increase percentages result from recognizing the conventional components of revenue requirement (based on projections incorporated into the agreement) and the insertion onto LILCO's balance sheet of a "Financial Resource Asset" (FRA), consisting of two components: a "Base Financial Component" (BFC) and a "Rate Moderation Component" (RMC).

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[1] These rate increase percentages are all in terms of system average cost per kwh, and assume that the cost of fuel rises in tandem with inflation through 1991 and at 2% above inflation thereafter.

[2] These 1992-98 targets in the agreement are intended to have an import similar to the year-by-year rate increases targeted in Opinion 86-14 (Case 28252, June 12, 1986) adopting a Shoreham phase-in plan. While the targets do not exceed 5%, LILCO is free to request a different level of rates in any year if circumstances warrant. Our decisions, of course, will be based on the facts in each case.

The BFC -- of $3.656 billion -- will go on the balance sheet as a plant account,[1] included in rate base, to be amortized over 40 years. The $3.656 billion figure was calculated from the current $243 million (annual amount, net of tax) Financial Stability Adjustment (FSA) included in rates; the FSA would essentially be converted into a rate base asset (based on the 40 year recovery period, a 4.0% inflation rate, and a 10% annual discounting to approximate LILCO's overall cost of capital over the period).[2]

The RMC would reflect accumulated revenues that LILCO will defer by virtue of constraining its rate increases to the levels specified in the agreement. In practice, this means that LILCO will be deferring a portion of its revenue entitlement on the BFC -- thereby phasing it into rates in a manner similar to that decreed in Opinion 86-14. The RMC deferral accumulation is expected to increase in the early years (reaching about $540 million in 1993), but then reverse and decrease, being eliminated around the end of 1998.

We note that while the BFC would give LILCO a large part of the revenue entitlements that would obtain were

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[1] The parties assume this treatment will be permitted by the SEC and FERC.

[2] The BFC figure actually placed on the balance sheet will reflect escalation at a 10% annual rate for the period between July 1, 1988 and the date the balance sheet entry is made.

Shoreham to operate, LILCO would not be getting the entirety; by agreeing to the BFC instead of Shoreham in rate base, LILCO is effectively foregoing a potential entitlement to rate recovery on approximately $380 million of investment.[1]

The agreement provides LILCO an opportunity to earn target equity returns of 14.2%, 13.25%, 13.0%, and 12.75% respectively for each year 1988 through 1991 (for modeling purposes, staff assumed an 11.75% equity cost during 1992-98). The initial 14.2% figure is the return allowance set in LILCO's last rate case (Opinion 87-26); the subsequent figures reflect an expected decline in the company's equity cost as its financial health improves and its investment risk decreases.

Any equity earnings more than 50 basis points above allowed levels would be used to offset future rate increases (but there is no provision for making up shortfalls). This equity earnings cap is intended to be a strong incentive for LILCO to hold down expenses,[2] and the spread could be increased to 70 basis points if LILCO successfully implements an aggressive demand side management (DSM) program, the precise arrangements for this to be worked out in the near future.[1]

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[1] This figure includes the investment in the Bokum uranium mine which, under this settlement, LILCO agrees to write off with no rate recovery.

[2] Also, under the settlement, LIPA would continue in existence and would retain the power to launch a takeover effort, if it feels LILCO is not being properly managed.

The settlement targets pre-tax interest coverage starting at 1.3 to 1.4 times in 1989 and 1990, rising to 1.5 times in 1991, 2.0 times by 1995 and 2.5 times by 1998. Based on these coverages, it assumes that LILCO will gain investment grade ratings (BBB- or Baa3)[2] for debt to be issued in 1988-89.

Immediately before the scheduled December 1988 rate increase, the base cost of fuel for fuel adjustment clause (FAC) purposes would be adjusted to reflect updated fuel costs based on a representative period (as we do routinely in a rate case). This base cost of fuel would then be increased by the overall rate increase percentage. Thereafter, any increases in fuel costs above the base fuel component would continue to be flowed to ratepayers in the usual FAC manner.

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[1] The current structure of the agreement rewards increased sales, as does most conventional ratemaking. This works against cost-effective conservation that decreases KWh sales. The parties should realize that our approval of this settlement will not foreclose future adjustments, following opportunity for comment, designed to assure that cost effective energy and demand reduction measures are not undercut by financial incentives to increase sales. Indeed, ratemaking adjustments that uncouple earnings from sales growth are to be expected.

[2] LILCO's current first mortgage bond ratings are BB- and Ba1. The settlement foresees LILCO gaining an A rating by the mid to late nineties.

However, decreases in fuel costs would not flow through the FAC; instead, they would be deferred and used to reduce the RMC balance or to offset future rate increases. We would meanwhile retain our authority to review the prudence of fuel costs.

It is expected that LILCO will deduct, for federal income tax purposes, Shoreham's cost as an abandonment loss (26 USC § 165), resulting in a net operating loss and subsequent loss carryforwards. Staff's witnesses indicated that most of the tax loss benefits will be preserved for ratepayers. They noted that roughly 30% of the tax benefits are attributable to Shoreham expenditures which were excluded from rate recovery, and as such are properly retained by shareholders. The agreement requires future tax benefits to be divided equally between ratepayers and shareholders until the shareholder portion of the tax benefits has been exhausted, after which ratepayers will receive the entirety.[1]

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[1] The federal income tax benefit of writing off Shoreham as a loss is actually not very different from the tax benefit from operating Shoreham. In the ordinary course, if Shoreham operates, its cost would be written off for income tax purposes in ten years. The abandonment would theoretically enable the whole write-off to occur immediately -- however, because of LILCO's tax situation, it could take perhaps eight or nine years to realize this benefit (LILCO of course does not have 1988 income sufficient to absorb the whole write-off). Thus, as stated, it does not make a major difference whether the write-off occurs through operating the plant or abandoning it.

LILCO would be required to implement the recommendations of an August 1987 Arthur Young management audit (with priority given to 51 non-Shoreham recommendations) and a June 1988 conservation audit report by Department staff.

Though Shoreham would not be considered taxable property, the agreeement anticipates that LILCO would make payments in lieu of property taxes to local governments, to be phased out at a 10% annual rate, over a decade.

Various other pending lawsuits and proceedings involving LILCO would be terminated;[1] left still alive, however, is the RICO suit (under 18 USC § 1961 et seq.) by Suffolk County charging that LILCO misrepresented Shoreham's costs and schedule in order to obtain rate increases.

Preferred stockholders would be paid the accrued dividends suspended since 1984.[2] Common stock dividends could be resumed at a level of $1 per share in 1989, $1.50 in 1990 and $2 in 1991, at the discretion of LILCO's Board.[1]

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[1] The following proceedings before us would be settled and closed: Case 29029 (CPB petition concerning excess 1984 LILCO earnings); Cases 28204 and 28704 (LILCO petitions to fund Bokum investments; but our prior expenditure authorizations will remain in effect unless we determine otherwise); Case 29301 (CPB petition concerning Hurricane Gloria expenses); and Cases 29484 and 88-E-084 (the pending rate case). Also terminated would be the remand of the Shoreham prudence case.

[2] Preferred dividends will total nearly $344 million by the end of 1988. The arrearage would be made up in a lump sum payment in the first quarter of 1989.

The Power Authority (if LILCO so requests and there are no lower bidders) would build up to five new generating units: perhaps three new 300-megawatt base load plants (each estimated to cost approximately $300 million, to be phased in over time and completed by January, 2001) and two 238-megawatt gas turbine peaking plants (at $90 million each, to be in place in 1989 and 1991). The output of these units would be sold to LILCO.

The agreement also should be taken as incorporating a June 16 letter from Governor Cuomo to the company's chairman, clarifying the inclusion of a LIPA trustee on LILCO's board, and the disposition of salvage value from Shoreham's assets to benefit ratepayers.

As a final point, the settlement provides (paragraph 9) that the disposition of any amounts received by LILCO from a judgment or settlement of litigation relating to Shoreham or certain other matters shall be determined by the Commission, generally consistent with ratepayers' and shareholders' relative contributions to the underlying claims. LILCO would also recover its out-of-pocket expenses.

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[1] LILCO last paid a common stock dividend, at $2.02 annually, in February 1984.

As this provision recognizes, our prior prudence decisions[1] have not attempted to allocate responsibility between LILCO and parties other than ratepayers for cost overruns at Shoreham. Thus, neither our prior decisions nor our acceptance of the settlement attempt to resolve any controversies between LILCO and its vendors regarding costs incurred in building Shoreham. Indeed, we encourage LILCO to pursue claims against vendors if the company believes valid claims exist; when and if LILCO obtains recoveries from such litigation, we shall determine the proper disposition, as contemplated by the settlement.

PUBLIC STATEMENTS

Afternoon and evening public statement hearings were held at Hauppauge and Mineola. A total of 68 speakers were heard.[2]

Of these, 12 favored the settlement. Their salient points were that the rate increases contemplated by the settlement are a bitter pill to swallow, but are apparently unavoidable, and that the key benefit of the settlement is the closure and dismantling of Shoreham, eliminating an alleged safety threat. Also cited was the restoration of LILCO to a reasonable state of financial health, and an end to conflict, with Long Islanders now being able to work together for their energy future (which these speakers generally felt would be adequately provided for under the settlement). A LIPA public power takeover scenario was rejected as probably unrealistic and as promising rates similar to those under the settlement anyway. A LILCO bankruptcy was also rejected as entailing too many uncertainties and a potential for higher rates.

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[1] See, e.g., Case 27563, Opinion No. 85-23, Shoreham Prudence Proceeding, (Issued December 16, 1985); Case 29124, Opinion No. 86-24 Nine Mile Point No. 2 Prudence Proceeding, (Issued October 3, 1986).

[2] Excluding repeat appearances.

The settlement was opposed by two disparate groups.

One group (20 speakers) generally favored the closure of Shoreham but deemed the settlement too generous to LILCO and its stockholders, "bailing out" the company for its "mistake." They felt that ratepayers under the settlement are being saddled with too large a share of the financial burden, that the rates it contemplates would be unfair and too high, and potentially harmful to Long Island's economic vitality. Some of these speakers favored public power or bankruptcy alternatives. Some also doubted whether the settlement would really make for the certainty touted by its advocates, and one (LIPA trustee Like) doubted that the settlement would guarantee the destruction of Shoreham. Several speakers questioned our ability to render an objective judgment on the settlement given trial staff's role in its negotiation, and some attacked as insufficient the stipulated ninety day review period.

A larger contingent (28 speakers) opposed the settlement because they deem it wrong to tear down a $5.3 billion facility that they believe stands ready to provide Long Island with much-needed energy. Nuclear power in general and Shoreham in particular were labelled safe, with the concerns of the antinuclear opponents rejected as stemming from ignorance and irrational fear. The closure of Shoreham was deemed nonsensical in view of the proximity of other operating nuclear plants, including Indian Point, Millstone, and Long Island's own Brookhaven. Evacuation of Shoreham's vicinity was held feasible, with historical examples (such as Hurricane Gloria) cited. In addition, doubt was expressed as to the likelihood of NYPA's being able to site and build economically the power plants contemplated in the settlement. These speakers were also troubled by the environmental implications of substituting fossil generation for nuclear -- air pollution, acid rain, and the "greenhouse effect" were frequently mentioned.

Finally, two speakers opposed the settlement for miscellaneous other reasons, and six voiced questions about the settlement or made comments that left it unclear whether they favor or oppose its approval.

PARTIES' ARGUMENTS

The three settlement advocates (LILCO, staff and CPB) all have made similar points to defend it. The discussion that follows will not necessarily credit each party with all of the points it mentioned. Suffolk County submitted an analysis claiming a rate advantage to a LIPA takeover, but expressly did not take any position on the settlement during the hearings. In its brief, Suffolk does appear to oppose the settlement.

CPB

The Consumer Protection Board deems the settlement the most practical and effective means for achieving the Cuomo administration's five critical goals in the negotiations: guaranteeing that Shoreham is dismantled; electric rates at least as low as under any alternative plan; a safe and adequate electric supply; a continuing role for LIPA (overseeing the decommissioning, and preserving the statutory authority to launch a takeover attempt); and imposing a new measure of responsibility on LILCO's management by adding a LIPA trustee to the company's Board of Directors.[1]

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[1] In fact, a LIPA trustee has already been elected to the LILCO board.

CPB's position is based on a comparison among the four basic alternatives: the settlement, a LIPA takeover, Shoreham operating, and bankruptcy.

The Board considers a bankruptcy untenable, pointing to uncertainty over whether rates would be set by us or the bankruptcy court, which might be more inclined to protect creditors than ratepayers. CPB notes that Public Service of New Hampshire is currently contemplating reorganization under the bankruptcy code into wholesale and retail divisions, with the wholesale division presumably to be regulated by FERC, which has been inclined to allow higher rates than state regulators.

CPB rejects the LIPA takeover scenario on the basis that Shoreham might be licensed and operated before the takeover could be completed. The Board also sees no rate advantage to a LIPA takeover.

As to Shoreham's operation, CPB deems this totally out of the question from the public health and safety standpoint. Also, the Board finds the settlement's rates lower than prescribed by our Shoreham phase-in plan (Opinion 86-14), noting that a June 1988 Lazard Freres study prepared for LIPA similarly concluded that if Shoreham operates, over 15 years rates would increase 5.2% annually, compared to 4.9% under the settlement. The Board explains these results on the basis that the settlement would permit LILCO to operate with lower capital costs and lower interest coverages, and to avoid the capital additions that would be required if Shoreham were in service.

Turning to the financial integrity aspects of the settlement, CPB explains that the rating agencies differentiate between BBB (or Baa) and BB (or Ba) ratings on the basis that, generally speaking, security of principal predominates over speculative characteristics for the higher ratings, while bonds bearing the lesser ratings are considered speculative and "below investment grade." CPB notes that S&P generally requires interest coverage of 1.5 to 3.0 times (excluding AFC) for a BBB rating (and 2.5 to 4.0 times for an A rating), with an emphasis placed on long-term financial projections. The Board further observes that currently, electric utilities rated BBB- by S&P have average cash coverage of 1.5 times. Another point is that rating agencies also evaluate qualitative factors, including ratemaking policies, relative construction risks and the earning power of a utility's assets. The Board says that the settlement's clear intent to restore LILCO's ratings to investment grade, our endorsement of this goal, and approval of the settlement's rate increases, together with the arrangements with NYPA to relieve LILCO of future construction requirements, all would be viewed favorably by the rating agencies.

CPB also supplied an analysis to support the equity return targets incorporated in the settlement, based on DCF calculations for the six New York electric utilities other than LILCO, whose financial indicators were said to approximate those of the industry as a whole. Using a retention growth approach, with 12.5-13.0% estimated 1989-2002 investor-expected equity earnings, the result was a 12.2-12.6% equity cost range, compared to a 12.0% geometric average of LILCO returns for those years under the settlement. For the years 1990-92, CPB found a 13.0% result for the sample companies, versus 12.6% for LILCO under the settlement. Finally, the Board deemed the 13.25% LILCO ROE for 1989 reasonable based on recent settlements involving Niagara Mohawk and RG&E allowing higher equity returns.

CPB holds the FRA mechanism consistent with generally accepted accounting principles, which allow an asset to be recorded where it is probable that future revenues at least equaling its capitalized amount will flow from the asset's inclusion in the ratemaking process. This requirement, CPB says, would be met by our adoption of the settlement and its associated rate arrangements.

CPB vaunts the 300 MW base load natural gas fired combined cycle generators, up to three of which would be built by NYPA under the agreement, as having relatively low capital costs and high efficiency, a relatively short construction time and modular nature that should facilitate a better matching of supply with demand, while also offering fuel flexibility should coal gasification become commercially feasible.

The Board also says that the NYPA-LILCO memorandum of understanding assigns us an important oversight role, NYPA being required to fulfill LILCO's construction requests only upon compliance with all integrated planning criteria and procedural requirements that we ordinarily would apply when considering utility construction plans.

Staff

Staff supports the agreement as establishing just and reasonable rates, which will enable LILCO to provide safe and adequate service. Staff also points to affordable, adequate energy supplies, resolution of pending litigation, additional ratemaking disallowances of $380 million, management changes, and a cap on the company's earnings, providing proper incentives for efficiency and for DSM measures.

Staff deems reasonable the settlement's rate increases, since they would approximate expected inflation -- following, in fact, a period of very stable, even declining, rates.[1] A further positive feature, in staff's view, is the elimination of the uncertainty surrounding Shoreham, which had led to a stalemate and all but eliminated the company's financial flexibility.

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[1] During 1984-88, electric rates declined by approximately 2% on a nominal basis and 22% on an inflation adjusted basis.

Like CPB, staff compared the settlement against bankruptcy, government takeover, and Shoreham operating.

Staff observes that until the recent case of Public Service of New Hampshire, there had not been a major utility bankruptcy in the U.S. in over 40 years. While the New Hampshire situation is still unfolding, staff considers it "certainly likely" that rates will rise due to the bankruptcy, noting that a utility in bankruptcy must have rates that enable it to pay off creditors or restructure its indebtedness, and to attract new capital to meet its obligation to serve, at the same time that increased risks would mean a higher cost of money. Staff also points to the possibility of conflict over rates and other issues, between the bankruptcy court and the regulatory body, adding to overall uncertainty and perhaps prolonging financial recovery.

Staff likewise sees many problems and uncertainties in a government takeover scenario, the first being the acquisition price. Staff also points to deferred tax benefits of almost $1 billion on LILCO's books, which the acquiring entity might have to pay. Meantime, the greatest potential source of savings in a public takeover would be the avoidance of federal income tax -- which staff says would not be a true cost savings, because other taxpayers would have to make up the difference.

As for operating Shoreham, staff says it reviewed LIPA's Lazard Freres study, and agrees that this scenario would be subject to escalating O&M expenses, higher property taxes, higher decommissioning costs, "flat-line" fuel savings and very expensive post-operational additions. Staff is also concerned that at some future point, regulatory requirements might force Shoreham to close. Based on the Lazard projection of a 5.2%-4.9% rate advantage to the settlement as noted, staff finds Shoreham's operation to compare unfavorably.

Staff's witnesses opined that the $3.656 billion FRA represents the minimum amount necessary to insure LILCO's financial recovery while producing just and reasonable rates. They noted in this connection several settlement features tending to limit rate increases, such as the equity return cap, the management audit implementation provisions, and the reservation of our right to determine the disposition of any refunds LILCO receives.

Staff calculates that, under the agreement's rate plan, LILCO's financial indicators would show definite improvement over the study period, with cash coverage rising from 1.4 times in 1989 to 2.5 times in 1998, and the percentage of internally generated funds rising from zero in 1989 to 100% in 1998. By 1998, LILCO would be expected to have the characteristics of an A-rated company.[1] Staff thinks that considering very low construction risk in 1998,[2] it should be able to obtain an A rating by around that time.

In the shorter term, staff believes that, based on the rating agencies' stated criteria, and with the settlement's qualitative features more than offsetting any shortfalls in current financial parameters, LILCO will be able to obtain investment grade ratings, and hence will be able to refinance much of its $3.6 billion debt at lower interest rates (in the 10-11% range),[3] which in turn would moderate future rate increases. Staff calculates that ratepayers would save over $1.3 billion in total revenues over the next 10 years as a direct result of the improvement in LILCO's financial position under the agreement.

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[1] With the exception of its debt ratio, which will be somewhat higher.

[2] In a "worst case" scenario, LILCO would only have to construct some relatively inexpensive units; and staff deems it far more likely that it will obtain new capacity through bidding by independent power producers as well as NYPA. Staff points out that our bidding opinion (88-15 in Case 29409) directed LILCO to submit proposed bidding guidelines by October 17, 1988, soon after which the bidding process could commence. LILCO has indeed filed its bidding proposal, which is now under review.

[3] The settlement assumed for modelling purposes a LILCO financing approaching $900 million soon after the settlement becomes effective.

Staff further says that restoring the preferred stock dividend would enable the company to retire some expensive outstanding preferred issues (about $350 million worth, at rates between 13.24% and 17.0%). Also noted is that payment of the preferred dividend arrears must precede resumption of common dividends, which staff in turn says would help restore investor confidence, reducing equity costs and providing the company with additional financing options.[1]

Staff also cites, as positive features of the settlement, its removal of the Bokum investment from ratemaking consideration, eliminating the risk of litigation over this issue, and its handling of the Jamesport loss recovery. Opinion 88-10[2] allowed LILCO to recover $77.5 million of Jamesport project costs from ratepayers, over three years, with an associated nominal revenue requirement (including taxes and return) of $150 million or more. The settlement calls for recovery of the $77.5 million through the use of deferred taxes previously collected but now excess (due to the FIT rate reduction from 46% to 34% in TRA-86). Staff considers this a reasonable way to dispose of both the Jamesport recovery and the excess deferred tax issues without rate case litigation.

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[1] However, the agreement assumes no common equity issues.

[2] Cases 28124 and 28757, Jamesport Loss Proceeding, April 5, 1988.

Still further, staff points to the resolution of the Shoreham prudence litigation[1] and also the pending case regarding alleged LILCO overearnings for the 12 months ending September 30, 1984. Staff's analysis there had indicated a $16 million overage which, under the agreement, would effectively be charged to stockholders and used to reduce rates from the level otherwise necessary.

LILCO

LILCO's submission was more abbreviated than CPB's and staff's, but adopts a similar stance. The company says that although under the agreement it "will clearly have to struggle to supply adequate energy," it believes that it can fulfill its obligations. Meanwhile, as benefits of the agreement, LILCO cites the savings associated with use of tax-exempt financing, and an end to uncertainty over both future rate levels and the company's financial viability. According to LILCO, the restoration of financial health will end an era in which the company's standing in the financial community has been poor, enabling it to improve its bond ratings and refinance its debt at more favorable interest rates. Also cited is the resolution of a broad range of litigation affecting the company, and improvement in working conditions, job security and morale for the company's employees, and the reestablishment of productive relations with local governments.

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[1] In Long Island Lighting Co. v. PSC, 134 A.D.2d 135 (3rd Dept. 1987), the Appellate Division remanded the issue of the apportionment of delay costs to us "for a more elaborative determination."

In its brief, LILCO casts this settlement as providing the resolution to the Shoreham deadlock sought in our last rate order, and also as providing the kind of certainty regarding future rate levels as was embodied in our Opinion 86-14 in the Shoreham Ratemaking Principles Proceeding.

Suffolk County

1. Settlement/LIPA Rate Comparison

As noted, Suffolk County submitted testimony claiming a rate advantage to a LIPA takeover.[1]

Suffolk's witness Talbot based his analysis upon the June 1988 Lazard Freres study mentioned earlier, making several adjustments to its assumptions. He thereby calculated that, as against the settlement, a LIPA takeover would mean savings of $2.3 billion or 9.2% in the present value of revenue requirements over the 15 year period 1989-2003, with LIPA's rates averaging 6.8% lower in the first five years, 7.2% lower in the next five, and 14.4% lower in the third five years. (The original Lazard study -- updated to reflect the actual settlement terms -- had found a rate advantage of at least $800 million to the settlement, as against a LIPA takeover.)[1]

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[1] Suffolk's witness originally also contended that LILCO would not really be giving up any Shoreham revenue entitlement under the settlement, but apparently retracted this view after it was pointed out that, contrary to his assumption, the portion of Shoreham's investment disallowed as imprudent has not been generating AFC accruals.

Suffolk first adjusted to $15 Lazard's assumed $19 per share takeover stock price, which Mr. Talbot said is above the range at which LILCO stock has traded over the past year (a range which he contended was already influenced by the possibility of the settlement). This accounted for $0.4 billion of Suffolk's $2.3 billion figure.

Another $0.4 billion derived from assumed LIPA bond interest rates of 9% until 1991 and 8.5% thereafter, whereas Lazard used 9.25% and 8.75%.

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[1] Prior to the update, the Lazard study found a $400 million advantage to LIPA. That was apparently Mr. Talbot's starting point (see *infra*).

Meanwhile, Mr. Talbot ultimately corrected his $2.3 billion figure to $2.2 billion.

A further $0.6 billion derived from changes in the capital costs assumed for LILCO under the settlement. Suffolk offered the following criticisms to Lazard's assumptions: (1) equity cost rates are projected to decline while debt and preferred stock rates are projected to remain constant throughout the period, whereas one should expect comparable movement in all rates; (2) preferred stock rates were assumed to be lower than long-term debt interest rates, whereas they should have been equal or higher; (3) the 11.75% equity cost assumed for 1992-2003 is too low, since it reflects a spread of 125 basis points over the 10.5% bond rate, whereas a normal spread would be about 300 basis points; and (4) the equity cost rate is also too low when considering the 60% debt leverage assumed by Lazard.

Suffolk sought to correct for these points by keeping the assumed capital structure for the first three years, but then allowing it to move toward a 50% debt ratio over the ensuing three to five years; and in place of the 11.75% 1992-2003 equity cost rate, Suffolk used 13.0%.

Mr. Talbot gained another $0.6 billion by eliminating a $600 million LIPA contingency amount reflected in the Lazard study, saying that this item was not adequately justified and was not appropriate for a "base case assumption." While recognizing that some contingencies might increase rates under a LIPA scenario, Suffolk saw a countervailing possibility that some contingencies could make the LIPA scenario even more attractive vis-a-vis the settlement.

The settlement's proponents, in the first place, criticize Mr. Talbot's presentation for focusing solely on the rate comparison between the settlement and a LIPA takeover, to the exclusion of the other factors which they claim make the settlement attractive. And as to Mr. Talbot's rate comparison, staff witness Stewart contended that it "selectively picks and chooses assumptions that unreasonably favor a LIPA scenario over the Settlement. If these errors and omissions are corrected, the Settlement is superior to a LIPA takeover." CPB witness Kessel's rebuttal takes a similar stance, sticking with the claim of an $800+ million rate advantage for the settlement over a LIPA takeover.[1]

Mr. Talbot's biggest error, according to CPB, is that he ignored the update to the Lazard study to reflect the settlement's actual terms (which hadn't been available to Lazard). Correcting this, says CPB, would negate $1.2 billion of the advantage which Suffolk claimed for the LIPA scenario over the settlement.

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[1] Mr. Talbot responded generally, to the staff and CPB rebuttal, by saying that a public power scenario basically has to be cheaper than any scenario continuing LILCO as a private entity, because of the large tax advantages, and that a contrary result can only be obtained by "torturing the numbers." But CPB says that it was Mr. Talbot himself who performed the torture.

Mr. Talbot defended his use of the unamended Lazard study by calling it "the only comprehensive and systematic comparison of [the settlement vs. LIPA] performed to date." However, in fact, Mr. Talbot had not felt the study was a proper comparison at all, since he substituted some of the assumptions that had been used in an earlier (March) Lazard study -- on the basis that the subsequent changes were "based on inconsistent data ... or were inadequately justified." CPB defends the changes as incorporating "more realistic values which Lazard accepted on the basis of comments from 'staff, the investment community and others.'" The Board argues that Mr. Talbot arbitrarily took only those assumptions from the March study which, when superimposed on the June study, would make LIPA look better vis-a-vis the settlement.

Staff and CPB also reject Suffolk's assumed $15 share price for a LIPA takeover, noting that this is below the forecasted book value of LILCO stock under the settlement at the end of 1988 (approximately $17) and hardly above LILCO's current trading range. The Lazard study, Mr. Stewart said, properly assumes a takeover price above book value, which is the common experience of successful takeovers. CPB observes that absent the settlement, book value would be nearly $18 at year-end 1988, justifying Lazard's $19 takeover price assumption.[1]

Mr. Stewart and CPB additionally criticized Mr. Talbot's 9.0% initial interest rate for LIPA debt, pointing to his failure to consider the effect of a huge $8-9 billion LIPA debt issue on its interest rate or on the cost of other New York State borrowings. Staff says that an unprecedented huge financing, by an entity with no track record, could not be undertaken without a significant interest rate premium, and it would undoubtedly increase the cost of other New York State and municipal debt issues. CPB meanwhile asserts that the Lazard 9.25% estimate was clearly sound, since it derived from an 8.6% figure for A-rated securities, requiring a .2-.3% adjustment to reflect LIPA's expected BBB rating and a further .25-.5% adjustment due to the size and controversiality of the issuance.

Staff and CPB disagree too with eliminating the $600 million LIPA contingency, an adjustment which they hold unreasonably favors a LIPA scenario, and which LIPA's own consultant does not support. Mr. Stewart said that Mr. Talbot did not mention how he considered the possibilities of a higher acquisition price or a $1 billion IRS deferred tax recapture, in eliminating the contingency allowance.

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[1] The Board adds that while the current stock price reflects the prospect of the settlement, on the other hand it also reflects concern about the company's survival; and that Mr. Talbot ignored the likelihood of LIPA being unable to act on any offer in excess of its last (rejected) $12 offer, as testified to by CPB witness Kessel.

Next, Mr. Stewart rejected the 42.5% equity ratio goal which Mr. Talbot attached to the settlement in his analysis; Mr. Stewart argued that LILCO must maintain low equity ratios if it is to minimize the RMC deferrals, and that the use of a higher equity ratio incorrectly portrays higher costs under the settlement. CPB too defends the 32.5% equity ratio projected under by the settlement as reasonable in view of LILCO's projected low business risk and lack of plans for issuing new equity.

Further, Mr. Stewart criticized Mr. Talbot's reflecting increased costs for preferred stock and common equity after 1991 while failing to explain why the cost of capital would rise at that time, considering the movement toward bidding for new generation capacity and other reduced risks. Also, said Mr. Stewart, Mr. Talbot failed to reconcile his 13.0% assumed 1992-2003 equity return with recent Commission allowances between 11% and 12% for other utilities (mostly in settlements). CPB argues similarly.

Mr. Talbot defended his assumptions on the basis that the settlement parameters provide coverage ratios below those supported in our Generic Financing Decision,[1] and that we have approved higher equity returns. But CPB deems it absurd to suppose that we would choose to supersede the settlement and allow higher equity returns to run LILCO's coverage up faster. The Board adds that Mr. Talbot ignored the likelihood that LILCO's relative risk would decline during the settlement period; that the higher equity returns to which he referred date from the early '80's when money costs in general were much higher; and that its own analysis (discussed earlier) demonstrates the current reasonableness of the settlement's capital cost parameters.

Mr. Stewart also pointed to major unexplained differences between Mr. Talbot's analysis and staff's in O&M expenses (noting a $3.63 billion Talbot figure for 2002, whereas staff's was $2.8 billion), and CPB notes an incorrect portrayal of the settlement's oil price escalation assumptions.[2]

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[1] Case 27679, Opinion 82-22, October 18, 1982.

[2] Staff and CPB reject, too, a Suffolk point about the possible failure of NYPA to obtain legislative authority to finance plants with tax exempt debt. They point out that the calculations supporting the settlement do not assume that NYPA or independent producers will build any plants, conservatively assuming instead that LILCO will construct all future plants, which Mr. Stewart thought probably overstates the true cost of generation capacity.

2. Other Suffolk Arguments

In addition to its rate comparison, discussed above and presented via testimony, Suffolk offered several further criticisms of the settlement on brief. Since the other parties had no prior hint of these claims, their ability to meet them was obviously limited. Also, LILCO argues that Suffolk's attempt to include additional provisions in the settlement should have been made during the negotiations and is inappropriate at this stage.

a. Guaranteeing Shoreham's Closure

Suffolk claims that the agreement does not guarantee Shoreham's prompt and permanent closure, saying that the language "is neither complete nor conclusive," and that "the public does not trust LILCO and cannot be certain that Governor Cuomo's successor in office will share his convictions against the operation of Shoreham." Suffolk proposes three remedial measures: (1) a requirement that in the event the NRC does not approve the license transfer to LIPA, LILCO will nevertheless take the necessary action to permanently disable the plant; (2) LIPA and NYPA should execute a final agreement for the prompt decommissioning, decontamination, and disabling of Shoreham, with consultation from Suffolk County, before we act on the settlement; and (3) a provision barring any change in the agreement without Suffolk's consent. Suffolk goes on to detail the steps that it feels must be taken to ensure that the plant never operates (fuel removal, decontamination, and physical disablement).

Staff replies that Sections 5 and 9 of the Transfer Agreement provide that once the settlement is effective, LILCO must remove Shoreham's radioactive fuel and transfer the plant to LIPA, which by statute must decommission it. LILCO points out that the identity of the Governor and his views would be irrelevant since LIPA, and not the State, will own the facility. CPB meanwhile quotes the view of Suffolk's own special counsel in the NRC proceedings that the settlement would preclude Shoreham's operation. Both staff and CPB reject Suffolk's specific decommissioning suggestions as an unnecessary intrusion into a difficult technical area.

Staff, CPB and LILCO, signatories to the settlement, all have indicated on the record that their intent was to ensure Shoreham's decommissioning, and further, asserted their view that the language and provisions of the settlement in fact accomplish this. Suffolk has not even specified in what way it thinks they are wrong.

b. Brookhaven Suit

Suffolk asserts that LILCO should be required to settle its litigation with the Town of Brookhaven seeking a $600 million property tax refund, claiming that Brookhaven over-assessed the Shoreham property. Though Suffolk says "it is not the place of the Commission to assess and levy local property taxes," the County goes on to argue about the merits of LILCO's dispute with Brookhaven. Suffolk also contends that unless this litigation is dropped, LILCO could recover its property tax payments twice -- once through their capitalization in Shoreham's book cost (which the County equates to the BFC) and again through the lawsuit.

Staff and CPB reject this notion, pointing out that any Brookhaven refunds would be flowed through to ratepayers.[1] Indeed CPB says that to force LILCO to drop this lawsuit would deprive its ratepayers of possible refunds, as well as unreasonably interfering with its rights as a litigant.

Suffolk's position here is without merit. With Suffolk not a party to the settlement, the County had no entitlement even to the payments in lieu of property taxes, and manifestly is not entitled to have LILCO forced to drop the Brookhaven lawsuit. Furthermore, that lawsuit seeks to recover, for the benefit of ratepayers, tax payments that LILCO feels were excessive; and as LILCO points out, it has always been our policy to encourage utilities to pursue such tax refunds.

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[1] And LILCO denies that the BFC is a proxy for Shoreham costs.

c. Ninety Day Deadline

Suffolk claims that the agreement's requirement for our approval within 90 days denies due process and has resulted in an inadequate record. Suffolk complains about the denial of its motion that a schedule be established for cross-examination of its rebuttal testimony and for the prefiling of rejoinder by the County (though cross-examination of rebuttal was in fact scheduled, for July 27; and Suffolk's witness was allowed to present oral rejoinder testimony when he took the stand). Suffolk also renews its request, denied by the Administrative Law Judge, to subpoena representatives of Lazard Freres to testify about the rate comparison studies, contending that Lazard has played an integral role in the Shoreham controversy as consultants to LIPA, with their reports and studies being utilized and referred to in testimony here. Only via the requested subpoena, Suffolk contends, could the record fully substantiate what is the least cost energy future for Long Island.

Staff says that the 90 day deadline was required by the circumstances surrounding the settlement, and that while this did mean a tight schedule, Suffolk was given a fair and reasonable opportunity to be heard. CPB says that the record contains abundant testimony on the points raised by Suffolk, sufficient to resolve them, and points out that Suffolk's subpoena request did not come until the final hearing. CPB quotes from the Administrative Law Judge's oral ruling denying the request, which had noted Suffolk's prior failure to pursue its discovery rights with respect to the Lazard study. LILCO in fact holds that Suffolk "manufactured" its due process claim by failing to engage the Lazard study in a timely fashion.

Despite the 90 day time constraint, Suffolk was given a reasonable opportunity to make its case, and did in fact submit both direct testimony and surrebuttal (after having cross-examined the other parties at length). The subpoena request was untimely, coming on the final hearing day, and in any event, the issue with which the subpoena request was concerned -- the settlement/LIPA rate comparison -- can readily be resolved without direct evidence from Lazard personnel.

d. Pending Federal Case

Suffolk finally asks that we not approve the settlement until we evaluate the alternative possibility that LILCO will be unable to obtain an NRC operating license. Suffolk points to a pending federal case seeking to nullify the NRC's new emergency planning rule.[1] The settlement, Suffolk contends, "would require the ratepayers to pay top dollar for nothing in return" if the plant proves unlicensable. And the County says that under such circumstances, we should "fashion rates that require the ratepayers to pay nothing more than can legitimately be assigned to them as costs for which they -- not LILCO -- are responsible," suggesting that LILCO was imprudent in proceeding with Shoreham after 1983, when Governor Cuomo announced his opposition.

In its reply brief, Suffolk adds that LILCO has been teetering on the edge of bankruptcy and is therefore in a poor position to bargain for an outcome more favorable to it than Suffolk proposes, being assertedly apt to settle for anything that avoids bankruptcy.

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[1] State of New York, et al. v. United States of America, et al., Docket No. 88-1121 (1st Cir. 1988). The NRC's new rule could overcome a need for local cooperation in evacuation planning. The Court of Appeals has sustained the rule, leaving the issue of its applicability at particular sites. 856 F.2d 378 (1st Cir. 1988).

Staff castigates Suffolk's "wait-and-see" approach as fostering continued uncertainty, and points out that any decision by the First Circuit would likely be appealed.

Suffolk's premise here is that if Shoreham becomes unlicensable, the settlement's rate levels could be significantly reduced. As will become clear in further discussion, that premise is invalid. In any event, the First Circuit decision has since been rendered, rejecting the general challenge to the NRC's new rule.[1]

RATE DESIGN

Generally

Staff witness Treiber, noting that the settlement is silent about rate design, proposed that the provisions of Opinion 88-3[2] -- dealing specifically with LILCO's rate design, revenue allocation and marginal cost issues -- should be applied to the first year rate increase here, scheduled for December 1, 1988, if the settlement is approved.

He added, however, that should marginal costs change significantly, some rate revision may be in order. Also, he said, considering the lead times needed to order and install meters as well as to inform customers, expansion of mandatory and optional time-of-use rates should promptly be considered, as well as curtailable rates or other DSM associated time-of-use rates. He noted that LILCO was soon to file its annual DSM plan, allowing adequate time for review and possible implementation of these proposals or alternatives prior to the December 1, 1988 rate increase date. Other appropriate rate design issues, he observed, could also be revisited during that same time frame.

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[1] ___ F.2d ___, Slip Op. issued September 6, 1988.

[2] Case 29484, Long Island Lighting Company - Rate Design, January 25, 1988.

Mr. Treiber further recommended that rate design issues be reviewed again prior to the October 1, 1989 and October 1, 1990 increase dates, with LILCO to file proposed rate designs with supporting marginal and embedded cost studies by the preceding November 15 in each case. He said this would permit any fine tuning, if necessary, of DSM associated rates prior to the critical summer period of each year.

The company had submitted a set of actual rates to implement the settlement, but subsequently stated that it would accept Mr. Treiber's recommendation. LILCO proposed to submit no new set of rates in time for consideration in this phase of the proceeding, but indicated that it would file them in time to accommodate appropriate review prior to the December 1, 1988 effective date.

The foregoing arrangements are acceptable, except that the marginal and embedded cost studies should be filed by March 15, 1989.

Stand-by Service Rates

In-Novo Engineering and Development Company objects to LILCO's rate design for back-up service to on-site generators. LILCO's rates were more or less based on principles used to develop Con Edison's and Niagara Mohawk's rates for this service, which in turn developed out of our on-site generation rate proceeding, Case 27574, concluded by Opinion 82-10 (May 12, 1982). In LILCO's last rate case, In-Novo attacked LILCO's stand-by rates as violating both Opinion 82-10 and PURPA, but we rejected its contentions.[1]

In-Novo now claims that its points did not receive proper consideration, alleging that the Administrative Law Judge did not understand the arguments, and for that reason simply adopted staff's position (and that we simply affirmed the Judge).

In-Novo's basic claim appears to be that rates for back-up service to on-site generators should not exceed the firm service rates applicable to the classes to which on-site generators would belong but for the fact that they generate power. According to In-Novo, the regular firm service rates for S.C. 1 and S.C. 2 (small residential and small commercial) are appropriate as alternatives to stand-by rates *per se*, but that this is not true for larger residential and commercial classes where time-differentiation and demand charges come into play.

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[1] Case 29484, Op. 88-3, supra, pp. 12-15.

For those larger customers who co-generate, special back-up rates *have* been designed, and these are the rates In-Novo criticizes. The two features of these back-up rates to which In-Novo apparently objects are the demand charge and the higher energy charges at peak times.

The demand charges here only cover distribution capacity costs, and hence have a small effect on bills. Thus, as staff observes, the existing rates actually come fairly close to In-Novo's position advocating energy-only rates. Nevertheless, In-Novo is apparently aggrieved by *any* demand component in back-up rates, because cogenerators seeking back-up service would tend to have a high potential demand in relation to their energy consumption. And as to the time-differentiated energy rates, In-Novo is concerned that a cogenerator whose unit fails at a peak time would pay too much.

The upshot, according to In-Novo, is that because of the two mentioned features, the back-up rates still recover greater revenues from on-site generators than from firm customers with identical load characteristics. And this, In-Novo claims, violates both Opinion 82-10's holding that firm service rates must be made available to all on-site generators, and PURPA's antidiscrimination provisions, again because stand-by customers whose generators happen to fail during system peaks would pay more heavily than In-Novo thinks they should.

In-Novo further contends that "these rates recover unequal costs for equal load characteristics from stand-by customers compared to their class of origin, and are discriminatory as a consequence." In-Novo says that LILCO's rate design shows "an arbitrary and unexplained point of intersection of equal cost recovery and equal load characteristics between firm and stand-by rates" and "indicate[s] average cost recoveries of the class of stand-by customers far in excess of the class of origin without substantiating this result by actual data." In-Novo believes that the company opposes its position because to design rates in the way In-Novo proposes would stimulate the development of co-generation, which in time would compete with the company itself.

In their replies, both staff and the company contend that In-Novo's raising this issue is inappropriate in this phase of the proceeding, whose purpose is to determine the merits of the settlement, and not to resolve rate design issues. They also argue that In-Novo is merely resubmitting arguments made, and rejected by us, in prior proceedings. LILCO points out that if In-Novo is really contesting the rate design adopted in Opinion 88-3, then the proper recourse would have been to file a motion for rehearing.

As to the merits, staff interprets In-Novo's submissions as seeking to charge on-site generators the average rate per kwh for the service class to which they would normally belong, with no discrete demand charges or time-differentiation. And according to staff, this was rejected in Opinion 88-3, because the absence of demand charges and time-differentiated rates would send these customers the wrong price signal, conflicting with sound rate design policies. Staff deems this concern particularly critical right now because of LILCO's current capacity deficiency. As to the claimed violation of PURPA, staff replies that there is no discrimination because under LILCO's tariffs all back-up customers can take service under firm rates. In fact, staff notes, In-Novo's specific proposed rates (if corrected for subsidization of low load factor customers) would produce rates which, even though they are confined to energy charges only, would closely resemble the S.C. 2L rates from which they would be derived (and which are already available as an option to on-site generators between 7 and 500 KW).

LILCO meanwhile defends its rates against the allegation of non-compliance with Opinion 82-10, pointing to five features which Opinion 82-10 prescribed for on-site generators, and contending that its rate design incorporates all of these features. And, like staff, LILCO argues that In-Novo's position would, if adopted, decrease rather than enhance pricing efficiency.

It is true, as staff and LILCO argue, that this is not a rate design proceeding. However, as was evidenced by Mr. Treiber's testimony, it is necessary to give some thought to rate design if the settlement is approved, since it would mean a 4.9% increase on December 1, 1988.

Accordingly, we are entertaining In-Novo's arguments on their merits. But, as we have done before, we are constrained to reject them.

The obvious reason why In-Novo wants cogenerators to be charged only for energy, and with no time differentiation, is that they take little energy, but may need it on-peak. Yet this is precisely the kind of situation for which demand charges and time-of-day rates were invented. Here, the demand charge covers the cost of distribution plant which the company must build to supply a customer's maximum demand; it costs the company something to do this, even if the customer only makes use of the capability rarely (or, for that matter, never). Also, for generation and transmission costs, it is the potential for demands at the peak times for the system that drives the company's capacity construction program. This is the reason for having time differentiated rates. Peak time-related charges are appropriate and desirable for the sake of fairness, in properly distributing costs among customer types, and they are also economically efficient in giving customers the correct signal with respect to the costs that their potential demands at the peak impose on the system. And this is all just as true for cogenerators with backup service as it is for other types of customers. To switch to a system of energy-only charges without time differentiation for such customers would undermine the foregoing principles.

As has been pointed out, cogenerators seeking backup service still have the option of simply taking the regular firm service rates that would otherwise apply to them. And despite its rhetoric about seeking equivalence to rates for the classes to which cogenerators would belong but for their cogeneration, In-Novo actually wants rates more favorable than that equivalency would give them.

DISCUSSION

The settlement before us was reached in part in response to our discussion in LILCO's last rate case.[1] In denying rate relief at that time, we stated:

> One need not take sides in the Shoreham debate to see that the long deadlock threatens Long Island's future power supply, as well as the company's survival....
>
> That deadlock and uncertainty have jeopardized the fundamental goal of electric utility regulation -- the assurance of a reliable and reasonably priced power supply. The uncertainty raises costs, saps LILCO's financial resources, inhibits power supply planning, consumes the attention of top management, and poisons the company's relationship with its customers and the goverment that they elect. It is in no one's interest for this situtation to continue....
>
> The power supply planning problem is particularly acute, for LILCO's reserve margins are already below desirable levels, and its dependence on oil is excessive.... Furthermore, the company cannot proceed equally vigorously in preparing for Shoreham and non-Shoreham futures....
>
> In a future without Shoreham, the amounts to be paid to buy generating capacity or to encourage energy conservation and load management will be higher than in a future in which Shoreham is assumed to come on line soon and operate reliably....

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[1] Case 29484, Opinion 87-26, December 3, 1987.

> The extraordinary level of public opposition to this plant is a real and consequential force under our system of government. It will continue despite whatever actions we or the company may take. The company may feel deeply justified in its past pursuit of the plant, but its foremost duty is to supply power on reasonable terms that are acceptable to the public that it serves as well as to its stockholders....
>
> We emphasize that we are not now taking sides as to the merits of the company's effort to license Shoreham, nor are we making any decision as to the future rate treatment of unresolved Shoreham issues. Indeed, LILCO may seek in April to demonstrate a clear basis for high confidence that Shoreham will operate to meet the 1989 peak season and beyond. Such confidence does not now exist, and unsuccessful pursuit of this option could retard alternative power supply planning in unacceptable ways....
>
> Just as LILCO needs to re-evaluate its goals, it is also important to realize that denying recovery of prudent Shoreham investment or some equivalent if the plant does not operate has the effect of forcing LILCO to continue its efforts to license the plant. LILCO will not abandon Shoreham if doing so precipitates its own demise. While it is too soon to commit ourselves to specific ratemaking treatment, the underlying need for principles that harmonize the company's economic self-interest with the desires of its customers must be recognized if the deadlock is to be broken in the context of our regulation of LILCO short of bankruptcy.
>
> With these understandings, and with the Shoreham struggle over, it should be possible to address Long Island's power supply needs and LILCO's financial health on a constructive basis involving all relevant governmental entities....

The parties have negotiated extensively and thoroughly, responding to the foregoing order, to produce the settlement before us. Our task is to decide whether that settlement meets the goals of assuring an adequate power supply priced as reasonably as possible. We conclude that it does.

There are four possible alternatives to approving the settlement: seeking renegotiation to obtain further concessions from LILCO, or else rejecting the settlement in hope of achieving Shoreham's operation, a LIPA takeover, or a bankruptcy/reorganization.

The settlement must be taken as a unified whole, and a quest for renegotiation would be unrealistic. As staff notes, we cannot assume that all parties to the settlement would want to take part in fresh negotiations, and previously resolved matters would be back on the table. The settlement allows its signatories to withdraw from it and pursue their own positions if it is not approved within the stipulated period.[1] Meantime a key benefit of the settlement is its certainty, providing an early resolution to the whole Shoreham controversy. To seek renegotiation would only serve to protract that controversy.

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[1] We note that by letter of November 16, 1988, LILCO has agreed to extend its commitment to the settlement for two weeks beyond the November 18 deadline (or to December 2).

However, if the settlement is rejected, the only certainty would be years of litigation, to which Long Island's energy and economic future would be hostage. Shoreham's ultimate fate would depend not only upon the Nuclear Regulatory Commission, but also upon the courts, the results of LIPA takeover efforts, and indeed, the experience of all other U.S. reactors.

We also reject the alternative of seeking a LILCO bankruptcy. As staff and CPB both argued, a bankruptcy would be contrary to ratepayer interests. There is no basis for confidence that ratepayers could escape the costs of Shoreham under a bankruptcy, and indeed, rate levels could well go higher than under the settlement.[1] Certainly a bankruptcy would plunge LILCO, and the Long Island energy picture, into uncertainty.

Suffolk County deems a LIPA takeover preferable to the settlement, arguing that it would entail lower rates. But Suffolk clearly failed to sustain this contention. The County assumed an offering price materially lower than what would be needed to actually effectuate a takeover; its elimination of the LIPA contingency allowance was likewise over-optimistic; its assumed bond interest rate was almost certainly too low; its LILCO capital structure assumption was probably too conservative; its assumed LILCO equity return was too high; and, as CPB argued, the biggest error was a failure to reflect the settlement's ultimate numbers in the comparison, vitiating its validity. Suffolk's witness' answer here -- that the unamended June study assumptions provided the only consistent comparison -- ignores that he himself had altered the June study's assumptions. Moreover, even if, arguendo, the numbers appeared to favor it, a takeover involves so many uncertainties that it would not be an attractive option unless the benefits were clear and large (which they certainly are not.)[1]

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[1] It is not even clear that we could bring about a bankruptcy if we wanted to, the record indicating that LILCO might survive through 1989 even without rate relief, avoiding bankruptcy while it pursues a Shoreham operating license.

In any event, we have no ability to bring about a LIPA takeover, and it is far from clear that LIPA itself does. The record suggests that there may not be enough votes on LIPA's board for a buy-out offer higher than the previous $12 LIPA offer rejected by LILCO.[2] It is also probable that, even if launched, a takeover effort would trigger years of conflict and litigation before it could conceivably succeed.[1] Furthermore, LIPA itself, which the Legislature set up to study the issue, disagrees with Suffolk, supporting the settlement as preferable to its own takeover option.

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[1] As staff comments, a LIPA takeover, among other things, "would entrust Long Island's precarious power supply problem to an unproven entity." And further, if a LIPA takeover did entail some rate advantage, this would, as staff also noted, be largely a consequence of tax avoidance, with no net societal gain.

[2] CPB witness Kessel said that unanimity or near-unanimity on the LIPA board would be required in order for LIPA to do the financing for a takeover. He also noted that LIPA's enabling legislation requires, for a takeover attempt, a showing that a takeover would save money for ratepayers -- increasingly difficult as the offering price rises.

Accordingly, none of the alternatives to the settlement seems attractive.

The strength of the settlement is that it produces certainty at a reasonable price.[2] This certainty will reduce LILCO's financing costs, which will produce lower rates. And critically, it will help to end the struggle over Shoreham which has divided and poisoned the energy planning atmosphere on Long Island for years, enabling LILCO and state and local governments to turn their undistracted attention to the Island's power supply situation.

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[1] Mr. Kessel observed that even if LILCO's Board agreed to a buy-out offer, it could be tied up by litigation on the part of minority stockholders; and staff points to legal and constitutional problems that could ultimately be held to bar a LIPA takeover.

[2] That certainty in these matters is of great value is demonstrated by the Seabrook situation, which in many respects parallels Shoreham. A number of participants in that project in 1984 disengaged by selling their shares at about 15 cents per dollar of sunk costs. They returned to financial health while the purchaser of the shares verges on bankruptcy. Their power supply is ample; other Seabrook owners are in bankruptcy or financially stressed and unable to count on Seabrook or to finance alternatives. Rates are stable and reasonably predictable among those who sold; they are rising and unpredictable among those who bought or held on.

As stated, this certainty is achieved at a reasonable price. The settlement does entail increases above present rates, but it cannot be stressed too strongly that comparing the settlement to present rates is meaningless. Rate increases are inevitable on Long Island, whether or not Shoreham runs, whether LILCO goes bankrupt, and whether there is a LIPA takeover. Predictions as to which alternative will be least expensive for ratepayers depend heavily on many future unknowns; but based on our evaluation, the settlement benefits ratepayers. It protects them from rate increases any greater than 5.0% for the first three years; LILCO is foregoing its claim to recovery on $380 million of investment (in addition to the $1.4 billion of Shoreham investment we found to be imprudent); the company's FRA recovery would be phased in according to a schedule emulating that which we earlier prescribed for a Shoreham phase-in; and the company is accepting an equity return cap. Furthermore, the rate increases under the settlement are projected to approximate inflation, so that the real price of electricity would hardly increase at all over the decade covered by the settlement (and rates are actually projected to decrease between 1998 and 2002).

We recognize that there is some sentiment for withholding rate increases or otherwise "punishing" LILCO for Shoreham imprudence. In fact, however, the company's investors have already been heavily penalized by our $1.4 billion imprudence disallowance; and when foregone dividends and foregone stock price appreciation are considered, LILCO stockholders have lost some $3.3 billion. Meanwhile, LILCO has made significant positive strides in recent years, without increasing rates: it has avoided major service interruptions in two very difficult summers despite very low reserves; it has dramatically improved consumer service performance with complaint rates now among the lowest in the state; LILCO is committed to full compliance with recent management and conservation audit recommendations; and the negotiations culminating in this settlement suggest a significant reappraisal on the company's part.

Finally in this context, LILCO's timely return to financial health is in the best interest of ratepayers. The higher financing costs, probable maintenance and service cuts, morale problems and general weaknesses of a utility kept anemic by inadequate rates will actually cost the customers more in the long run than a sensibly paced return to reasonable financial health. Staff, and CPB as well, argued convincingly that the rates provided by the settlement are the minimum needed to support LILCO at an acceptable level of financial integrity, and that rates any lower would not be acceptable from that standpoint. Thus, even if further concessions could be extracted from LILCO, they are unlikely to lower long run customer costs.

In conclusion, none of the alternatives to the settlement offers a reasonable prospect of lower rates or better power supply planning. The settlement reflects the collective best judgment of the parties who have, for the last decade, differed profoundly over this issue. We approve the settlement as the best option available for Long Island's energy future.

The Commission Orders:

1. Subject to the discussion in the foregoing Opinion, the settlement agreement described further on page 1 thereof is approved.

2. Long Island Lighting Company is directed to file, effective no later than November 30, 1988, tariff schedules cancelling the schedules previously filed and currently under suspension in this proceeding, identified in Appendix A.

3. Long Island Lighting Company is directed to file, effective no later than December 1, 1988, amendments to its electric tariff embodying the revisions set forth in the Settlement Agreement approved herein. The company shall

serve copies of its filing upon all parties to this proceeding. Any comments on the compliance filing must be received at the Commission's offices within ten days of service of the company's proposed amendments. Amendments specified in the compliance filing shall not become effective on a permanent basis until approved by the Commission. The company is directed to file the amendments to go into effect on or before December 1, 1988, subject to refund, if any showing is made that the revised rates are not in compliance with this Opinion. The requirements of Section 66(12) of the Public Service Law and 16 NYCRR 136.70 that newspaper publication be completed before the effective date of the amendments directed in this ordering clause are waived, but Long Island Lighting Company is directed to file with the Commission, on or before January 15, 1989, proof that notice to the public of the changes proposed by such amendments and their effective date has been published once a week for four successive weeks in newspapers having general circulation in the area affected by the amendments.

4. As described in the foregoing Opinion, the company is directed to institute deferral accounting for the following items:

a. The "Base Financial Component" of the "Financial Resource Asset" shall be deferred if recording this item on the balance sheet as a plant account is not permitted by the SEC or the FERC.

b. The "Rate Moderation Component" of the "Financial Resource Asset".

c. Any equity earnings in excess of the "dead band" provisions of the Settlement Agreement - LILCO Issues.

d. Any decrease in fuel costs below the fuel component included in base rates.

e. Any Federal income tax benefits of the abandonment loss deduction which are not allocable to stockholders pursuant to the Commission decision in Case 27563, Opinion No. 85-23.

f. Any amounts received by LILCO from a judgment or settlement of litigation relating to Shoreham or certain other matters.

g. Actual costs incurred attributable to the decommissioning and/or dismantling of Shoreham.

In the event FERC disapproves the recording of item a in a plant or other balance sheet account, the company must file a proposal with the Director of the Office of Accounting and Finance for his approval designating the account to be used. For items b through g, the company is authorized to use the following accounts, as appropriate, to defer the principal and Federal income tax effects of the above items: Account 186, Miscellaneous Deferred Debits; Account 253, Other Deferred Credits; Account 190, Accumulated Deferred Income Taxes; and Account 283, Accumulated Deferred Income Taxes - Other. The amounts deferred under these plans shall be recorded in separate subaccounts so as to remain readily identifiable. All deferrals and amortizations shall be subject to audit and to review and acceptance by the Director of the Office of Accounting and Finance. Any matter concerning the deferrals and/or amortizations which are unacceptable to the Director of the Office of Accounting and Finance shall be presented to the Commission for resolution.

5. Thirty days after the effective date of the Settlement Agreement - LILCO Issues the company shall submit for review by the Director of the Office of Accounting and Finance its detailed accounting proposals for the following items:

a. The Shoreham revaluation and write-off, including the Federal income tax benefit deferral and allocation.

b. The establishment of the "Base Financial Component" of the "Financial Resource Asset".

c. The Bokum write-off.

d. The Jamesport/Deferred Tax (excess) netting.

e. The Excess Earnings write-off ($16 million).

Any matter concerning these proposed accounting plans which is unacceptable to the Director of the Office of Accounting and Finance shall be presented to the Commission for resolution.

6. Ordering clauses 2, 3, 4 and 5 above are contingent upon the settlement's becoming effective through satisfaction of all outstanding requirements for approval.

7. Cases 29029, 28204, 28704, 29664 and 29301 are closed.

8. This proceeding is continued.

By the Commission,

(SIGNED) JOHN J. KELLIHER
Secretary

Cases 29484 and 88-E-084 APPENDIX

SUBJECT: Filing by LONG ISLAND LIGHTING COMPANY

Amendments to Schedule P.S.C. No. 7 - Electricity

Second Revised Leaves Nos. 33L, 42C, 55 and 56
Third Revised Leaf No. 42B
Fourth Revised Leaf No. 50
Fifth Revised Leaves Nos. 26A-1 and 49
Eighth Revised Leaf No. 19C
Ninth Revised Leaves Nos. 28E, 30B, 33J and 44
Twenty-first Revised Leaves Nos. 2 and 47
Twenty-sixth Revised Leaf No. 28C
Twenty-ninth Revised Leaf No. 33I
Thirty-fifth Revised Leaf No. 38
Fortieth Revised Leaves Nos. 31A, 42 and 43
Forty-third Revised Leaf No. 45
Forty-fifth Revised Leaf No. 33G
Fiftieth Revised Leaf No. 33F
Fifty-seventh Revised Leaf No. 30
Fifty-eighth Revised Leaf No. 28

Supplement Nos. 130 and 131

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

CASES 29484 and 88-E-084 - LONG ISLAND LIGHTING COMPANY - Electric Rates.

Harold A. Jerry, Jr., Commissioner, concurring:

I join in Commissioner Kresky's concurrence.

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

CASES 29484 and 88-E-084 - LONG ISLAND LIGHTING COMPANY -
Electric'Rates.

Gail Garfield Schwartz, Commissioner, concurring:

This settlement in addition to the merits that the Commission's Opinion articulates, has the additional merit of reflecting the position I and two fellow commissioners took in 1985 and 1986. In Case 27563, the Shoreham Prudence Investigation, our dissent not only deplored the disallowance as being inadequate, but also insisted that the cut-off date for assessing imprudent costs should not be March of 1986, since commercial operation would not take place by then and the prudence of subsequent expenditures after that date should be assessed. In Case 28252, we dissented from a prospective Shoreham rate phase-in plan on the grounds that uncertainties regarding the opening of the plant had not been resolved, but had indeed become more intense, and the "possibility of commercial operation of the plant is mired in ever increasing controversy." We wrote, "Today's ratemaking principles have little permanent relevance and are an exercise in futility. Furthermore...the Commission that decides this major issue should be the Commission that has to face the consequence of its decision."

This is that Commission, and I am fully satisfied that the majority now speaks to my earlier concerns. The revaluation of the asset created under the settlement approximates the proportional disallowance of expenditures for the plant, pre-3/86, had that operation been applied to post-3/86 expenditures: $250 million. And the disallowance of excess earnings for the period ending 9/30/84 comes to $16 million. While one cannot ever assert that another course of action would not yield a superior result, this settlement does require LILCO to forfeit $396 million (including $130 million for Bokum Resource Recovery) in undeserved revenues, and the certainty of the forfeiture is itself a very valuable element of the settlement.

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

CASES 29484 and 88-E-084 - LONG ISLAND LIGHTING COMPANY - Electric Rates.

Edward M. Kresky, Commissioner, concurring:

The fiasco of Shoreham is now drawing to a close. The settlement agreement being approved by this Commission should not be construed as a triumph. Rather, it is a reflection of the imprudence over past years by LILCO management and the disjointed public policy-making at all levels of government -- state, local and federal -- on the issue of Shoreham over these long years.

Clearly, the "plus" found in an approved settlement agreement is that the first steps can be taken to put the issue of Shoreham to rest so that full attention can be given to the real problem of ensuring Long Island an adequate and economic power supply.

The negotiations that led to the agreement began shortly after the December 1987 decision on LILCO by this Commission. In a way, the negotiations followed classical lines. The representatives of the State administration were unmovable in their position that Shoreham be shut down. The Long Island Lighting Company was unmovable in its position to see to it that it continues as a financially viable investor-owned utility. With these two matters effectively removed from the bargaining table, a settlement became possible.

I have described the Shoreham situation as a fiasco. What other description can fit such a scenario where a completed $5.3 billion asset is on its way to be shuttered without ever really operating beyond some minor testing; where large rate increases are in store for the already hard pressed Long Island community whether Shoreham opens or not; where LILCO investors have lost over $3 billion between 1983 and 1988; where uncertainty shrouds the costs and location of replacement facilities for a closed down Shoreham; and, one can go on and on. Nowhere can I find much reason for comfort.

Are there really any good alternatives to the plan which shuts down Shoreham and retains LILCO as a viable company? I find that the bankruptcy alternative is an unsure approach that probably would be more costly than the settlement plan. I find a Long Island Power Authority take-over of LILCO to be worrisome public policy. LIPA, inexperienced as it is in matters of utility operations and finance, is ill-equipped to deal with the difficult problems that lie ahead.

A renegotiation of the settlement agreement is, in my judgment, risky and probably impossible. The settlement plan contains many "give ups" by both sides. Ratepayers and LILCO investors both have paid, or will pay, a heavy price for the debacle at Shoreham. The negotiation phase, it seems to me, is now over.

We therefore should consider the matter of having Shoreham opened as suggested in the carefully reasoned analysis prepared for the Commission by the Administrative Law Judge.

There is much to be said for opening Shoreham, although I have in the past expressed some concern over emergency evacuation of the area east and around Shoreham. In 1983, four long years after the Three Mile Island incident, the State of New York abruptly withdrew from its long support for the already completed Shoreham plant by announcing that it was not feasible to evacuate the Shoreham area and that the plant should not be opened.

The State of New York, Suffolk County and its towns and villages then removed themselves from any emergency evacuation planning. To my knowledge, there was no serious, sustained effort to try to develop a suitable evacuation plan on the part of New York State, Suffolk County and the concerned localities working in cooperation with the appropriate Federal officials. It seems to me that here too we have troublesome public policy.

The evacuation issue, in recent years, became one no longer subject to rational discussion. The opposition to Shoreham, in the words of the Administrative Law Judge, "reached such proportions that many deem the plant's opening impossible from a pragmatic standpoint." These words are all too true.

Thus, I find bankruptcy, a LIPA take-over, and a renegotiated settlement agreement all to be impractical. And, realistically, I cannot see Shoreham being opened in the face of the formidable opposition that wishes it closed.

Accordingly, I find no reasonable alternative but to support the settlement agreement even though the circumstances surrounding the settlement probably will move LILCO into undisputed first place as the nation's highest cost electric utility.

Hopefully, the agreement also will permit us to move along with the task of ensuring that replacement power for Shoreham is on line as soon as possible.

I vote for the settlement agreement but do so with limited enthusiasm. The sorry saga of Shoreham is hardly the finest hour in our State's history.

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

CASES 29484 AND 88-E-084 LONG ISLAND LIGHTING COMPANY -
Electric Rates

James T. McFarland, Commissioner, dissenting:

I cannot support this settlement Agreement. The reasons for my decision are well stated in an analysis of the Agreement by Administrative Law Judge Frank S. Robinson, dated September 1, 1988, which was submitted to the Commission for consideration at its September 15, 1988 Session.

Judge Robinson, a respected and experienced Administrative Law Judge, conducted the public statement and evidentiary hearings on the settlement proposal. He is thoroughly familiar with the company, its operations and the controversy before us. Thus he is well qualified to comment on the impact of this Agreement.

Based on his extensive analysis of the complex issues in this case, Judge Robinson concluded that the settlement Agreement was not in the best interests of the Long Island ratepayers. I subscribe wholeheartedly to his reasoning and his conclusion:

> "The settlement merits rejection because its benefits are insufficient to justify the destruction of a $5.3 billion facility whose operation would solve Long Island's critical power supply problem, would be safe, clean and environmentally beneficial and should save Long Islanders money. A better alternative would be to look to the NRC to grant an operating license as soon as possible."

Some support this Agreement because of their opposition to Shoreham on safety grounds. But in response to my questioning at the Commission Session on September 15, 1988, Judge Robinson stated that he did not find in the record or in the public testimony any evidence that the Shoreham nuclear power plant presented any health or safety hazard to any member of the public.

And for good reason: experience demonstrates that the generation of electricity in the United States by means of nuclear power can be done with relative safety. Indeed, we have six operating nuclear power plants in New York State, two in proximity to metropolitan New York, which have been generating electricity safely and economically for many years.

Regarding the potential need for emergency evacuation, in his analysis Judge Robinson points out:

> "...the whole evacuation emphasis is overblown, given the virtually infinitesimal chance of an accident actually requiring evacuation. There has never been such an accident in the thousand-plus reactor-years of commercial nuclear operations in this country. To scrap a $5.3 billion asset based on such an alleged safety concern is irrational in light of the multitude of far likelier threats and dangers that people live with in equanimity."

In my opinion, objections to Shoreham on evacuation grounds are either uninformed or specious and insincere.

On economics, operating Shoreham is the better alternative despite recently reported statements to the contrary by certain public officials. Further, Judge Robinson finds in his analysis of the economic study heralded by the Consumer Protection Board as reason to support the Agreement, that:

> "The study does not show, however, that to dismantle Shoreham is economically preferable to operating the plant. In fact, it shows the opposite." (emphasis supplied)

On reliability, the Judge analyzes the power supply situation on Long Island, which is concededly severe and a detriment to the Long Island consumer and the region's economy. He concludes that Shoreham's abandonment would leave Long Island:

"...vulnerable to power supply deficiencies".

In summary, for reasons of safety, economy and reliability, Shoreham is preferable to the Agreement.

Judge Robinson's analysis treats all of these complex issues in considerable greater detail. It is a most professional, informed and objective analysis. It is powerful and persuasive and should have been made public as a Recommended Decision. It is a pity and a shame that interested and intimately affected citizens on Long Island, as well as their legislators and public officials who are sincerely interested in a proper resolution of this problem, have not had an opportunity to review it.

For whatever benefit it may bring, I now incorporate Judge Robinson's analysis in this dissent and attach it hereto, in-toto, and make it a part hereof.

In addition to the foregoing, recent developments provide persuasive grounds for rejecting the settlement. This Commission's own Order of December 3, 1987 which denied LILCO a rate increase was premised principally on the Commission's concern for the company's ability to provide an adequate and reliable supply of electric energy to the Long Island consumers, particularly for the 1988 summer peak. It stated the concern that

LILCO could not effectively plan for adequate power supply for Long Island while at the same time vigorously pursuing a license for Shoreham.

However, these developments seriously weaken that basic premise of the December decision and give rise to a good deal of confidence that indeed Shoreham may soon be in a position to be fully licensed and to commence operations in time to provide adequate and reliable energy to meet that critical 1989 summer peak season.

I am referring first to a federal court approval of the NRC "realism" regulation for evaluating emergency evacuation plans in the face of state and local public safety non-cooperation. This could possibly hasten the licensing process.

Then the NRC reportedly is to conduct a pre-operation inspection of the Shoreham facility. Also, the company has represented to the NRC that the facility is ready to operate when granted a license.

Additionally, it would appear that the days of Shoreham's licensing delays at the NRC may be nearing an end. An NRC Licensing Board imposed the ultimate sanction on the state and Suffolk County for their obstructionist and non-cooperative stonewalling tactics during the inquiry into the safety of the company's federally required emergency evacuation plan. The Licensing Board dismissed them as parties to the proceeding (Atomic & Safety Licensing Board, Docket #50-322-OL-3 [Emergency Planning, Sept. 23, 1988]).

The Decision at page 110 detailed a litany of guileful actions resorted to by the Shoreham opponents, and characterized them as having:

> "...persistently thwarted the efforts of the federal agency to reach an informed conclusion with respect to the adequacy of LILCO's emergency plan".

The Board found the Governor's top official in disaster and emergency matters intentionally disconnected a dedicated emergency communication line with LILCO (page 107). It noted also that the state and county frustrated LILCO's attempt to obtain relocation centers; and disconnected emergency telephones and returned them to LILCO. Suffolk even passed a county law establishing criminal penalties for any person participating in emergency exercises! (page 111). (Enforcement was enjoined by court order.)

Ironically the very parties claiming that any required evacuation could not be safely accomplished, seem to have done all within their power to try to prevent the planning for a safe evacuation.

Subsequently the dismissal sanction imposed on the state and Suffolk County by the Licensing Board was found on initial intra-agency appeal not to have been a specifically legally authorized sanction. A final decision on that issue now rests with the full NRC, as does the matter of granting a full license for Shoreham.

The point of all this is that there is mounting evidence that decisive action will soon be taken at the NRC on the Shoreham license. LILCO may indeed have high confidence that Shoreham will operate to meet the 1989 peak season and beyond. The system reliability which rightly concerned the Commission in December 1987 would be better accomplished by cooperating in this process instead of endorsing a plan which calls for the destruction of Shoreham and further destabilizes system reliability.

Prudent exercise of the Commission's statutory responsibility dictates that at the very least this Commission exercise its jurisdiction to adjourn a decision on this matter for what is likely to be a reasonably brief time. In the interim, LILCO would be provided with the funds needed to maintain its financial viability and to continue rendering safe and adequate service.

If the Governor and the Legislature, as well as local governments, sincerely want to help the LILCO ratepayer and the economy of Long Island, they have at their unique disposals the full power and authority to do something about it.

State and local sales taxes, for instance, on all industrial and commercial utility bills amount to 7% in Suffolk and 8% in Nassau. (The state 4% sales tax does not apply to residential bills.) Suffolk County imposes a 1% sales tax on residential bills; Glencove 3%; New York City 4%. The state tax on gross utility company receipts is 3.75%. In addition, local gross receipt taxes average .27% on electric operations. Then the 1.8% Metropolitan Transportation Authority adds another .6% to utility bills. Add to that the high local property taxes levied on LILCO (all paid by the ratepayers) and one sees a vital area for governmental action to remedy high utility bills.

And when one considers that these taxes will be added to "the highest utility rates in the country" as called for by this Agreement, one has a tax scenario that not only will contribute heavily to the ratepayers' burdens but will produce a tax windfall for governments.

It does not have to be that way. With the kind of dedicated, resourceful, hands-on regulatory effort this Department and its Staff are capable of, I believe a better deal for the ratepayers could and should be worked out. Company survival would have to be provided for of course. A number of economies could be immediately employed and some substantial expenditures avoided. I believe more modest rates than those projected could be developed.

The "uncertainty" and the "poisoned" relationships the original decision spoke of would be ameliorated if the Agreement is rejected. Jarring neighborhood disputes over the location of a series of LILCO fossil fuel generating plant would be avoided. A properly developed and maintained emergency plan for the area, in full compliance with federal safety standards, could be prepared. The Island's economic development would not be threatened. The company would be freed to divert all of its energies to producing and distributing the safest energy at fair and reasonable prices.

In fact, this Commission could ensure that and mandate it. Local governments would not need to suffer the calamitous loss of LILCO real property tax levies. Highly desirable environmental goals for Long Islanders would be achieved.

Of course, the LILCO-haters will still be out there fomenting antipathy toward the company. So some of the "poisoning" of relationships will continue. This anti-LILCO sentiment will always be present to some degree as long as there is political capital to be gained, egos to be assuaged and other personal interests to be satisfied. I understand the Assemblyman who brought us the ill-conceived LIPA has now drafted bills to legislatively bring about LILCO's bankruptcy: the epitome of political opportunism but hardly realistic or sound public policy.

But let the politicians take care of politics. I am confident they can handle themselves. Let this Commission regulate utilities. That's what it was created for.

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

[illegible]

September 1, 1988

TO: THE COMMISSION

FROM: FRANK S. ROBINSON, Administrative Law Judge

SUBJECT: CASES 29484 and 88-E-084 - LONG ISLAND LIGHTING COMPANY - Electric Rates - ANALYSIS OF SHOREHAM SETTLEMENT.

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STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

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FROM: FRANK S. ROBINSON, Administrative Law Judge

SUBJECT: CASES 29484 and 88-E-084 - LONG ISLAND LIGHTING COMPANY - Electric Rates - ANALYSIS OF SHOREHAM SETTLEMENT.

I. INTRODUCTION

On June 23, 1988, Long Island Lighting Company, after long negotiations, signed a settlement agreement with the State of New York,[1] DPS Staff and the Long Island Power Authority, resolving the status of the Shoreham Nuclear Power Plant, and addressing as well future rate levels and power supply.[2]

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[1] Including the Governor, the New York Power Authority, the Consumer Protection Board, the Urban Development Corporation and the State Energy Commissioner.

[2] The settlement consists of three documents, a "Settlement Agreement - LILCO Issues" (appended hereto), an "Asset Transfer Agreement" between LILCO and LIPA, and a "Memorandum of Understanding Concerning Proposed Agreements on Power Supply for Long Island" between LILCO and the New York Power Authority.

The settlement stipulated that it would not become effective unless, inter alia, it is approved by the Commission within 90 days (i.e., by September 21).[1] By order of June 23, 1988, the Commission determined to treat the settlement as a proposed resolution of LILCO's pending rate application[2] (together with various related motions).[3] Parties were directed to submit prefiled testimony by July 1, 1988; public statement hearings were held in Hauppauge on July 6 and in Mineola on July 7; and evidentiary hearings in Mineola on July 11, 12 and 27.[4] The record has been certified to the Commission.

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[1] Approvals are also required from LILCO stockholders and the Nuclear Regulatory Commission, and are being sought from the state legislature.

The settlement allows an extension of the September 21 deadline to two weeks beyond the stockholder meeting if the shareholder meeting does not take place by September 11; and it probably will not.

[2] The Commission also, however, must approve the proposed transfer of Shoreham to the Long Island Power Authority, under Public Service Law § 70.

The agreement (paragraph 11) further requests the Commission to expressly agree that it will review and act upon any power supply agreement between LILCO and NYPA within three months of submission.

The Company also requests a waiver of the requirements concerning the submission of testimony in major rate proceedings, set forth in the Commission's 1977 test period Policy Statement and in the NYCRR.

[3] The motions were listed in the June 23 order. In addition, the Commission may wish to include a July 27, 1987 CPB petition concerning LILCO's payments to Lyn Nofziger.

[4] Staff, CPB and LILCO sponsored testimony supporting the settlement. Suffolk County presented testimony saying that a LIPA takeover would be cheaper but not explicitly opposing the settlement; Staff and CPB sponsored rebuttal. Suffolk was allowed to enter oral surrebuttal, and Staff and CPB followed with oral rejoinder.

Briefs and replies were submitted by Staff, LILCO, CPB and Suffolk County.[1] A rate design issue raised by In-Novo Engineering and Development Company was briefed separately, with replies by Staff and LILCO.

It should be noted that if this settlement is rejected, LILCO's April rate filing would be reactivated, with the suspension period ending in March 1989;[2] LILCO has also indicated that it might seek emergency rate relief even sooner.

This analysis will describe the settlement's terms; recapitulate the parties' arguments; and then evaluate the settlement's pros and cons. Since the parties did not actually address all pertinent points, much of the substantive discussion will be found in the final section.

The essence of the settlement is that Shoreham would be dismantled, rates would rise by approximately 5% per year for 3 years and 4.5 to 5% for another seven years, and NYPA (or a lower bidder) would build any new capacity needed to meet LILCO's loads. This analysis suggests that the settlement is not in the public interest because it would scrap a completed $5.3 billion power plant whose operation should save Long Island money, would avoid a real danger of power supply deficiencies, and would be safe, clean, and environmentally beneficial; and that the settlement's ostensible benefits are not a sufficient tradeoff, because the power supply arrangements would be moot if Shoreham operates, and its rate arrangements can be (and would have to be) implemented independently.

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[1] The parties were instructed to confine their briefs only to contested matters.

[2] Though CPB says it would argue that the suspension period "tolled" while the settlement was under consideration.

If, however, the Commission is willing to sign Shoreham's death warrant, the settlement is not otherwise objectionable; its rate arrangements are reasonable, and there would be no sound alternative scenarios.

II. SETTLEMENT TERMS

Under the settlement, the Long Island Power Authority would buy Shoreham for $1, and oversee its decommissioning,[1] which will be carried out by NYPA. LILCO would pay for the decommissioning, and would recover the expenditure through rates, amortized over 40 years. The amount is expected to range up to $440 million.[1] Pending the actual transfer to LIPA, LILCO is barred from operating the plant.

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[1] LILCO's witnesses testified that, upon long study, Shoreham's conversion to burn fossil fuel would not be economical, and it would be better to tear down the plant and start fresh. Mothballing too, LILCO said, would not make economic sense unless there were a reasonable expectation of operating the plant at some point; mothballing is very expensive, primarily because of the staffing that would have to be maintained, and the costs of keeping current with NRC structural requirements. In any case, said a LILCO witness, the State's negotiators "were not willing to listen to any mothballing scenario."

The plan prescribes electric rate increases of 4.9% on December 1, 1988; 5% on October 1, 1989; and another 5% on October 1, 1990, with annual rate increases targeted at 4.5 to 5% annually from 1992 to 1998,[2] but subject to Commission approval.[3] The rate increases for the first three years are "locked in" under the agreement;[4] however, if material unforeseen changes occur, their impact on rates can be deferred and recognized subsequently. The Commission could authorize higher rates during the three years only in the event of a bankruptcy or imminent bankruptcy.

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[1] LILCO feels confident this figure will not be exceeded. It is expressed in nominal dollars, not 1988 dollars.

It should be noted that while LILCO, LIPA and the Commission would all have an opportunity to review and comment on NYPA's decommissioning budgets and billings, NYPA would not be bound to heed any such comments, and LILCO would be obligated to pay NYPA's billings as rendered.

[2] These rate increase percentages are all in terms of system average cost per kwh, and assume that the cost of fuel rises in tandem with inflation through 1991 and at 2% above inflation thereafter.

[3] These 1992-98 targets in the agreement are intended to have an import similar to the year-by-year rate increases targeted in the Commission's Opinion 86-14 adopting a Shoreham phase-in plan. There is a presumption that an effort should be made not to exceed 5%, but LILCO is free to request a greater increase in any year if circumstances warrant. See transcript pages 810-24 for a discussion of this subject among the parties.

[4] Note that Public Service Law § 72 authorizes the Commission to fix rates for no longer than three years.

The stated rate increase percentages result from recognizing the conventional components of revenue requirement (based on projections incorporated into the agreement) and the insertion onto LILCO's balance sheet of a "Financial Resource Asset" (FRA), consisting of two components: a "Base Financial Component" (BFC) and a "Rate Moderation Component" (RMC).

The BFC -- of $3.656 billion -- will go on the balance sheet as a plant account,[1] included in rate base, to be amortized over 40 years. The $3.656 billion figure was calculated from the current $243 million (annual amount, net of tax) Financial Stability Adjustment (FSA) included in rates; the FSA would essentially be converted into a rate base asset (based on the 40 year recovery period, a 4.0% inflation rate, and a 10% annual discounting to approximate LILCO's overall cost of capital over the period).[2]

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[1] Assuming this is permitted by the SEC and FERC.

[2] The BFC figure actually placed on the balance sheet will reflect escalation at a 10% annual rate for the period between July 1, 1988 and the date the balance sheet entry is made.

The RMC would reflect accumulated revenues that LILCO will defer by virtue of constraining its rate increases to the specified levels of the agreement. In practice, this means that LILCO will be deferring a portion of its revenue entitlement on the BFC -- thereby phasing it into rates in a manner similar to that decreed by the Commission in Case 28252 (the Shoreham "ratemaking principles" case). The RMC deferral accumulation is expected to increase in the early years (reaching about $540 million in 1993), but then reverse and decrease, being eliminated around the end of 1998.

It may be noted that while the BFC would give LILCO a large part of the revenue entitlements that would obtain were Shoreham to operate, LILCO would not be getting the entirety; in effect, by agreeing to the BFC instead of Shoreham in rate base, LILCO is effectively foregoing a potential entitlement to rate recovery on approximately $380 million of investment.[1]

The agreement provides LILCO an opportunity to earn target equity returns of 14.2%, 13.25%, 13.0%, and 12.75% respectively for each year 1988 through 1991 (for modeling purposes, Staff assumed an 11.75% equity cost during

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[1] This figure includes the investment in the Bokum uranium mine which, under this settlement, LILCO agrees to write-off with no rate recovery.

1992-98). The initial 14.2% figure is the return allowance set in LILCO's last rate case (Opinion 87-26); the subsequent figures reflect an expected decline in the Company's equity cost as its financial health improves and its investment risk decreases.

Any equity earnings more than 50 basis points above allowed levels would be used to offset future rate increases (but there is no provision for making up shortfalls). This equity earnings cap is intended to be a strong incentive for LILCO to hold down expenses,[1] and the spread could be increased to 70 basis points if LILCO successfully implements an aggressive demand side management (DSM) program, the precise arrangements for this to be worked out in the near future.[2]

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[1] Also, under the settlement, LIPA would continue in existence and would retain the power to launch a takeover effort, if it feels LILCO is not being properly managed.

[2] If LILCO does succeed in its DSM efforts, the associated sales reduction could conceivably cut into the Company's earnings, rendering academic the incentive otherwise provided by the 50 (or 70) basis point leeway in the equity return cap; indeed, LILCO might actually have some incentive to moderate its DSM efforts to avoid too great a sales loss. One way to ameliorate this might be to permit LILCO to demonstrate what its DSM-induced revenue losses are, and to defer those amounts as a cost of the program (for the first three years; in subsequent years, rates could be set on the basis of net DSM-adjusted sales projections).

It should be noted, however, that LILCO conceives the DSM effort as aimed at shaving peak demands rather than at reducing sales.

The settlement targets pre-tax interest coverage starting at 1.3 to 1.4 times in 1989 and 1990, rising to 1.5 times in 1991, 2.0 times by 1995 and 2.5 times by 1998. Based on these coverages, it assumes that LILCO will gain investment grade ratings (BBB- or Baa3)[1] for debt to be issued in 1988-89. It requires LILCO to provide the Commission with some assurance that this rating goal can be achieved before the agreement becomes effective; absent such assurance, LILCO has the right to withdraw from the agreement.[2]

Immediately before the scheduled December 1988 rate increase, the base cost of fuel for fuel adjustment clause (FAC) purposes would be adjusted to reflect updated fuel costs based on a representative period (*i.e.*, a routine "roll-in"). This base cost of fuel would then be increased by the overall rate increase percentage. Thereafter, any increases in fuel costs above the base fuel component would continue to be flowed to ratepayers in the usual FAC manner. However, *decreases* in fuel costs would *not* flow through the FAC; instead, they would be deferred and used to reduce the

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[1] LILCO's current first mortgage bond ratings are BB- and Ba3. The settlement foresees LILCO gaining an A rating by the mid to late nineties.

[2] On August 8, LILCO advised that it cannot yet provide the stipulated assurance, and waived for another thirty days its right to withdraw from the settlement. (This does not affect the suspension period on the rate filing).

RMC balance or to offset future rate increases. The Commission would meanwhile retain its authority to review the prudence of fuel costs.

It is expected that LILCO will be able to deduct, for federal income tax purpcses, Shoreham's cost as an abandonment loss (IRC § 165), resulting in a net operating loss and subsequent loss carryforwards. Staff's witnesses indicated that most of the tax loss benefits will be preserved for ratepayers. They noted that roughly 30% of the tax benefits are attributable to Shoreham expenditures which were excluded from rate recovery, and as such are properly retained by shareholders. The agreement requires future tax benefits to be divided equally between ratepayers and shareholders until the shareholder portion of the tax benefits has been exhausted, after which ratepayers will receive the entirety.[1]

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[1] The federal income tax benefit, of writing off Shoreham as a loss, is actually not very large. In the ordinary course, if Shoreham operates, its cost would be written off for income tax purposes in ten years. The abandonment would theoretically enable the whole write-off to occur immediately -- however, because of LILCO's tax situation, it could take perhaps eight or nine years to realize this benefit (LILCO of course does not have 1988 income sufficient to absorb the whole write-off). Thus, as stated, it does not make a tremendous difference whether the write-off occurs through operating the plant or abandoning it.

LILCO has requested a tax ruling on the issue but may not have an answer by September, and in any event the matter will not be fully settled until after the utility files a tax return reflecting its claim.

LILCO would be required to implement the recommendations of an August 1987 Arthur Young management audit (with priority given to 51 non-Shoreham recommendations) and a June 1988 conservation audit report by Department Staff.

Though Shoreham would not be considered taxable property, LILCO would make payments in lieu of property taxes to local governments, to be phased out at a 10% annual rate, over a decade.

Various other pending lawsuits and proceedings involving LILCO would be terminated;[1] left still alive, however, is the RICO suit by Suffolk County charging that LILCO misrepresented Shoreham's costs and schedule in order to obtain rate increases.

Preferred stockholders would be paid the accrued dividends suspended since 1984.[2] Common stock dividends could be resumed at a level of $1 per share in 1989, $1.50 in 1990 and $2 in 1991, at the discretion of LILCO's Board.[1]

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[1] The following Commission proceedings would be settled and closed: Case 29029 (CPB petition concerning excess 1984 LILCO earnings); Cases 28204 and 28704 (LILCO petitions to fund Bokum investments; but prior Commission expenditure authorizations will remain in effect unless the Commission determines otherwise); Case 29301 (CPB petition concerning Hurricane Gloria expenses); and Cases 29484 and 88-E-084 (the pending rate case). Also terminated would be the remand of the Shoreham prudence case.

[2] Preferred dividends will total nearly $344 million by the end of 1988. The arrearage would be made up in a lump sum payment in the first quarter of 1989.

The Power Authority (assuming LILCO so requests and that there are no lower bidders) would build up to five new generating units: perhaps three new 300-megawatt base load plants (each costing $320 million, to be completed by January, 2001) and two 240-megawatt gas turbine peaking plants (at $80 million each, to be in place by 1989).[2] The output of these units would be sold to LILCO.

The agreement also should be taken as incorporating a June 16 letter from Governor Cuomo to the Company's chairman, clarifying the inclusion of a LIPA trustee on LILCO's board, and the disposition of salvage value from Shoreham's assets to benefit ratepayers.

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[1] LILCO last paid a common stock dividend, at $2.02 annually, in February 1984.

[2] It is anticipated that Congress would likely have to pass special legislation to lift current limits on tax-free financing, in order for NYPA to raise the money to build these plants. There is some question about the viability of such legislation, given the tax subsidies otherwise already given to LILCO.

On the other hand, it may be noted that LIPA had been authorized to raise $8-9 billion for a takeover, and NYPA's financing would be far smaller; that Con Edison and Brooklyn Union Gas get IDB allocations annually; and in any event, the calculations and projections accompanying the settlement do not reflect any benefits from tax-free financing.

III. PUBLIC STATEMENTS

Afternoon and evening public statement hearings were held at Hauppauge and Mineola. A total of 68 speakers were heard.[1]

Of these, only 12 favored the settlement (this group included CPB chief Kessel, LIPA chairman Mack and two other LIPA trustees, and NYPA chairman Flynn). Their salient points were that the rate increases contemplated by the settlement are a bitter pill to swallow, but are apparently unavoidable, and that the key benefit of the settlement is the closure and dismantling of Shoreham, eliminating an alleged safety threat. Also cited was the restoration of LILCO to a reasonable state of financial health, and an end to conflict, with Long Islanders now being able to work together for their energy future (which these speakers generally felt would be adequately provided for under the settlement). A LIPA public power takeover scenario was rejected as probably unrealistic and as promising rates similar to those under the settlement anyway. A LILCO bankruptcy was also rejected as entailing too many uncertainties and a potential for higher rates.

The settlement was opposed by two disparate groups.

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[1] Excluding repeat appearances.

One group (20 speakers) generally favored the closure of Shoreham but deemed the settlement too generous to LILCO and its stockholders, "bailing out" the Company for its "mistake." They felt that ratepayers under the settlement are being saddled with too large a share of the financial burden, that the rates it contemplates would be unfair and too high, and potentially harmful to Long Island's economic vitality. Some of these speakers favored public power or bankruptcy alternatives. Some also doubted whether the settlement would really make for the certainty touted by its advocates, and one (LIPA trustee Like) doubted that the settlement would guarantee the destruction of Shoreham. Several speakers questioned the Commission's ability to render an objective judgment on the settlement given Staff's role in its negotiation, and some attacked as insufficient the stipulated ninety day review period.

A larger contingent (28 speakers) opposed the settlement because they deem it wrong to tear down a $5.3 billion facility that stands ready to provide Long Island with much-needed energy. Nuclear power in general and Shoreham in particular were labelled safe, with the concerns of the antinuclear opponents rejected as stemming from ignorance and irrational fear. The closure of Shoreham was deemed nonsensical in view of the proximity of other operating nuclear plants, including Indian Point, Millstone, and Long Island's own Brookhaven. Evacuation of Shoreham's vicinity was held feasible, with historical examples (such as Hurricane Gloria) cited. In addition, doubt was expressed as to the likelihood of NYPA's being able to site and build economically the power plants contemplated in the settlement. These speakers were also troubled by the environmental implications of substituting fossil generation for nuclear -- air pollution, acid rain, and the "greenhouse effect" were frequently mentioned.

Finally, two speakers opposed the settlement for miscellaneous other reasons, and six voiced questions about the settlement or made comments that left it unclear whether they favor or oppose its approval.

IV. PARTIES' ARGUMENTS

The three settlement advocates (LILCO, Staff and CPB) all have made similar points to defend it. The discussion that follows will not necessarily credit each party with all of the points it mentioned. Suffolk County submitted an analysis claiming a rate advantage to a LIPA takeover, but did not expressly take any position on the settlement. In its brief, Suffolk does appear to oppose the settlement.[1]

A. CPB

The Consumer Protection Board deems the settlement the most practical and effective means for achieving the Cuomo administration's five critical goals in the negotiations: guaranteeing that Shoreham is dismantled; electric rates at least as low as under any alternative plan; a safe and adequate electric supply; a continuing role for LIPA (overseeing the decommissioning, and preserving the statutory authority to launch a takeover attempt); and imposing a new measure of responsibility on LILCO's management by adding a LIPA trustee to the Company's Board of Directors.

CPB's position is based on a comparison among the four basic alternatives: the settlement, a LIPA takeover, Shoreham operating, and bankruptcy.

The Board considers a bankruptcy untenable, pointing to uncertainty over whether rates would be set by the Commission or the bankruptcy court, which might be more inclined to protect creditors than ratepayers. CPB notes that Public Service of New Hampshire is currently contemplating reorganization under the bankruptcy code into wholesale and retail divisions, with the wholesale division presumably to be regulated by FERC, which has been inclined to allow higher rates than state regulators.

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[1] On August 4, a group of Long Island legislators wrote to the Chairman urging rejection of the settlement and pursuit of a bankruptcy alternative. Staff has responded on brief, though correctly pointing out that the proposal was made outside the hearing process and hence has not been subject to proper analysis. For this reason the proposal may not be deemed available for consideration. In any event, Staff's brief contains a persuasive critique of the proposal; and as seen infra, bankruptcy is clearly not an attractive option.

CPB rejects the LIPA takeover scenario on the basis that Shoreham might be licensed and operated before the takeover could be completed. The Board also sees no rate advantage to a LIPA takeover.

As to Shoreham's operation, CPB deems this totally out of the question from the public health and safety standpoint. Also, the Board finds the settlement's rates lower than prescribed by the Commission's phase-in plan adopted in Case 28252 (Opinion 86-14, June 12, 1986), noting that a June 1988 Lazard Freres study prepared for LIPA similarly concluded that if Shoreham operates, over 15 years rates would increase 5.2% annually, compared to 4.9% under the settlement. The Board explains these results on the basis that the settlement would permit LILCO to operate with lower capital costs and lower interest coverages, and to avoid the capital additions that would be required if Shoreham were in service.

Turning to the financial integrity aspects of the settlement, CPB explains that the rating agencies differentiate between BBB (or Baa) and BB (or Ba) ratings on the basis that, generally speaking, security of principal predominates over speculative characteristics for the higher ratings, while bonds bearing the lesser ratings are considered speculative and "below investment grade." CPB notes that S&P generally requires interest coverage of 1.5 to 3.0 times (excluding AFC) for a BBB rating (and 2.5 to 4.0 times for an A rating), with an emphasis placed on long-term financial projections. The Board further observes that currently, electric utilities rated BBB- by S&P have average cash coverage of 1.5 times. Another point is that rating agencies also evaluate qualitative factors, including ratemaking policies, relative construction risks and the earning power of a utility's assets. The Board says that the settlement's clear intent to restore LILCO's ratings to investment grade, the Commission's endorsement of this goal, and approval of the settlement's rate increases, together with the arrangements with NYPA to relieve LILCO of future construction requirements, all would be viewed favorably by the rating agencies.

CPB also supplied an analysis to support the equity return targets incorporated in the settlement, based on DCF calculations for the six New York electric utilities other than LILCO, whose financial indicators were said to approximate those of the industry as a whole. Using a retention growth approach, with 12.5-13.0% estimated

1989-2002 investor-expected equity earnings, the result was a 12.2-12.6% equity cost range, compared to a 12.0% geometric average of LILCO returns for those years under the settlement. For the years 1990-92, CPB found a 13.0% result for the sample companies, versus 12.6% for LILCO under the settlement. Finally, the Board deemed the 13.25% LILCO ROE for 1989 reasonable based on recent settlements involving Niagara Mohawk and RG&E allowing higher equity returns.

CPB holds the FRA mechanism consistent with generally accepted accounting principles, which allow an asset to be recorded where it is probable that future revenues at least equaling its capitalized amount will flow from the asset's inclusion in the ratemaking process. This requirement, CPB says, would be met by the Commission's adoption of the settlement and its associated rate arrangements.

CPB vaunts the 300 MW base load natural gas fired combined cycle generators, up to three of which would be built by NYPA under the agreement, as having relatively low capital costs and high efficiency, a relatively short construction time and modular nature that should facilitate a better matching of supply with demand, while also offering fuel flexibility should coal gasification become commercially feasible.

The Board also says that the NYPA-LILCO memorandum of understanding assigns the Commission an important oversight role, NYPA being required to fulfill LILCO's construction requests only upon compliance with all integrated planning criteria and procedural requirements that the Commission ordinarily would apply when considering utility construction plans.

B. Staff

Staff supports the agreement as establishing just and reasonable rates, which will enable LILCO to provide safe and adequate service. Staff also points to affordable, adequate energy supplies, resolution of pending litigation, management changes, and a cap on the Company's earnings, providing proper incentives for efficiency and for DSM measures.

Staff deems reasonable the settlement's rate increases, since they would approximate expected inflation -- following, in fact, a period of very stable, even declining, rates.[1] A further positive feature, in Staff's view, is the elimination of the uncertainty surrounding Shoreham, which had led to a stalemate and all but eliminated the Company's financial flexibility.

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[1] During 1984-88, electric rates declined by approximately 2% on a nominal basis and 22% on a real cost basis.

Like CPB, Staff compared the settlement against bankruptcy, government takeover, and Shoreham operating.

Staff observes that until the recent case of Public Service of New Hampshire, there had not been a major utility bankruptcy in the U.S. in over 40 years. While the New Hampshire situation is still unfolding, Staff considers it "certainly likely" that rates will rise due to the bankruptcy, noting that a utility in bankruptcy must have rates that enable it to pay off creditors or restructure its indebtedness, and to attract new capital to meet its obligation to serve, at the same time that increased risks would mean a higher cost of money. Staff also points to the possibility of conflict over rates and other issues, between the bankruptcy court and the regulatory body, adding to overall uncertainty and perhaps prolonging financial recovery.

Staff likewise sees many problems and uncertainties in a government takeover scenario, the first being the acquisition price. Staff also points to deferred tax benefits of almost $1 billion on LILCO's books, which the acquiring entity might have to pay. Meantime, the greatest potential source of savings in a public takeover would be the avoidance of federal income tax -- which Staff says would not be a true cost savings, because other taxpayers would have to make up the difference.

As for operating Shoreham, Staff says it reviewed LIPA's Lazard Freres study, and agrees that this scenario would be subject to escalating O&M expenses, higher property taxes, higher decommissioning costs, "flat-line" fuel savings and very expensive post-operational additions. Staff is also concerned that at some future point, regulatory requirements might force Shoreham to close. Based on the Lazard projection of a 5.2%-4.9% rate advantage to the settlement as noted, Staff finds Shoreham's operation to compare unfavorably.

Staff's witnesses opined that the $3.656 billion FRA represents the minimum amount necessary to insure LILCO's financial recovery while producing just and reasonable rates. They noted in this connection several settlement features tending to limit rate increases, such as the equity return cap, the management audit implementation provisions, and the reservation of the Commission's right to determine the disposition of any refunds LILCO receives.

Staff calculates that, under the agreement's rate plan, LILCO's financial indicators would show definite improvement over the study period, with cash coverage rising from 1.4 times in 1989 to 2.5 times in 1998, and the percentage of internally generated funds rising from zero in 1989 to 100% in 1998. By 1998, LILCO would be expected to have the characteristics of an A-rated company.[1] Staff thinks that considering very low construction risk in 1998,[2] it should be able to obtain an A rating by around that time.

In the shorter term, Staff believes that, based on the rating agencies' stated criteria, and with the settlement's qualitative features more than offsetting any shortfalls in current financial parameters, LILCO will be able to obtain investment grade ratings, and hence will be able to refinance much of its $3.6 billion debt at lower interest rates (in the 10-11% range),[3] which in turn would moderate future rate increases. Staff calculates that ratepayers would save over $1.3 billion in total revenues over the next 10 years as a direct result of the improvement in LILCO's financial position under the agreement.

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[1] With the exception of its debt ratio, which will be somewhat higher; Staff notes that while this is not ordinarily desirable from a credit quality standpoint, holding down the equity ratio significantly limits the revenues needed to restore LILCO's financial health (because the tax effect of earnings on higher equity balances would be included in revenue requirement).

[2] In a "worst case" scenario, LILCO would only have to construct some relatively inexpensive units; and Staff deems it far more likely that it will obtain new capacity through bidding by independent power producers as well as NYPA. Staff points out that the Commission's bidding opinion (88-15 in Case 29409) directed LILCO to submit proposed bidding guidelines by October 17, 1988, soon after which the bidding process could commence.

[3] The settlement contemplates a LILCO financing approaching $900 million in October 1988.

Staff further says that restoring the preferred stock dividend would enable the Company to retire some expensive outstanding preferred issues (about $350 million worth, at rates between 13.24% and 17.0%). Also noted is that payment of the preferred dividend arrears must precede resumption of common dividends, which Staff in turn says would help restore investor confidence, reducing equity costs and providing the Company with additional financing options.[1]

Staff also cites, as positive features of the settlement, its removal of the Bokum investment from ratemaking consideration, eliminating the risk of litigation over this issue, and its handling of the Jamesport loss recovery. In Opinion 88-10, the Commission allowed LILCO to recover $77.5 million of Jamesport project costs from ratepayers, over three years, with an associated nominal revenue requirement (including taxes and return) of $150 million or more. The settlement calls for recovery of the $77.5 million through the use of deferred taxes previously collected but now excess (due to the FIT rate reduction from 46% to 34% in TRA-86). Staff considers this a reasonable way to dispose of both the Jamesport recovery and the excess deferred tax issues without rate case litigation.

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[1] However, the agreement assumes no common equity issues.

Still further, Staff points to the resolution of the remand of the Shoreham prudence case, and also the pending case regarding alleged LILCO overearnings for the 12 months ending September 30, 1984. Staff's analysis there had indicated a $16 million overage which, under the agreement, would effectively be charged to stockholders and used to reduce rates from the level otherwise necessary.

C. LILCO

LILCO's submission was more abbreviated than CPB's and Staff's, but adopts a similar stance. The Company says that although under the agreement it "will clearly have to struggle to supply adequate energy," it believes that it can fulfill its obligations. Meanwhile, as benefits of the agreement, LILCO cites the savings associated with use of tax-exempt financing, and an end to uncertainty over both future rate levels and the Company's financial viability. According to LILCO, the restoration of financial health will end an era in which the Company's standing in the financial community has been poor, enabling it to improve its bond ratings and refinance its debt at more favorable interest rates. Also cited is the resolution of a broad range of litigation affecting the Company, and improvement in working conditions, job security and morale for the Company's employees, and the reestablishment of productive relations with local governments.

In its brief, LILCO casts this settlement as providing the resolution to the Shoreham deadlock sought by the Commission in its last rate order, and also as providing the kind of certainty regarding future rate levels as was embodied in the Commission's Opinion 86-14 in the Shoreham Ratemaking Principles Proceeding.

D. Suffolk County

1. Settlement/LIPA Rate Comparison

As noted, Suffolk County submitted testimony claiming a rate advantage to a LIPA takeover.[1]

Suffolk's witness Talbot based his analysis upon the June 1988 Lazard Freres study mentioned earlier, making several adjustments to its assumptions. He thereby calculated that, as against the settlement, a LIPA takeover would mean savings of $2.3 billion or 9.2% in the present value of revenue requirements over the 15 year period 1989-2003, with LIPA's rates averaging 6.8% lower in the first five years, 7.2% lower in the next five, and 14.4%

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[1] Suffolk's witness originally also contended that LILCO would not really be giving up any Shoreham revenue entitlement under the settlement, but apparently retracted this view after it was pointed out that, contrary to his assumption, the portion of Shoreham's investment disallowed as imprudent has not been generating AFC accruals.

lower in the third five years. (The original Lazard study -- updated to reflect the actual settlement terms -- had found a rate advantage of at least $800 million to the settlement, as against a LIPA takeover.)[1]

Suffolk first adjusted to $15 Lazard's assumed $19 per share takeover stock price, which Mr. Talbot said is above the range at which LILCO stock has traded over the past year (a range which he contended was already influenced by the possibility of the settlement). This accounted for $0.4 billion of Suffolk's $2.3 billion figure.

Another $0.4 billion derived from assumed LIPA bond interest rates of 9% until 1991 and 8.5% thereafter, whereas Lazard used 9.25% and 8.75%.

A further $0.6 billion derived from changes in the capital costs assumed for LILCO under the settlement. Suffolk offered the following criticisms to Lazard's assumptions: (1) equity cost rates are projected to decline while debt and preferred stock rates are projected to remain constant throughout the period, whereas one should expect comparable movement in all rates; (2) preferred stock rates were assumed to be lower than long-term debt interest rates, whereas they should have been equal or higher; (3) the 11.75% equity cost assumed for 1992-2003 is too low, since it reflects a spread of 125 basis points over the 10.5% bond rate, whereas a normal spread would be about 300 basis points; and (4) the equity cost rate is also too low when considering the 60% debt leverage assumed by Lazard.

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[1] Prior to the update, the Lazard study found a $400 million advantage to LIPA. That was apparently Mr. Talbot's starting point (see *infra*).

Meanwhile, Mr. Talbot ultimately corrected his $2.3 billion figure to $2.2 billion.

Suffolk sought to correct for these points by keeping the assumed capital structure for the first three years, but then allowing it to move toward a 50% debt ratio over the ensuing three to five years; and in place of the 11.75% 1992-2003 equity cost rate, Suffolk used 13.0%.

Mr. Talbot gained another $0.6 billion by eliminating a $600 million LIPA contingency amount reflected in the Lazard study, saying that this item was not adequately justified and was not appropriate for a "base case assumption." While recognizing that some contingencies might increase rates under a LIPA scenario, Suffolk saw a countervailing possibility that some contingencies could make the LIPA scenario even more attractive vis-a-vis the settlement.

The settlement's proponents, in the first place, criticize Mr. Talbot's presentation for focusing solely on the rate comparison between the settlement and a LIPA takeover, to the exclusion of the other factors which they claim make the settlement attractive. And as to Mr. Talbot's rate comparison, Staff witness Stewart contended that it "selectively picks and chooses assumptions that unreasonably favor a LIPA scenario over the Settlement. If these errors and omissions are corrected, the Settlement is superior to a LIPA takeover." CPB witness Kessel's rebuttal takes a similar stance, sticking with the claim of an $800+ million rate advantage for the settlement over a LIPA takeover.[1]

Mr. Talbot's biggest error, according to CPB, is that he ignored the update to the Lazard study to reflect the settlement's actual terms (which hadn't been available to Lazard). Correcting this, says CPB, would negate $1.2 billion of the advantage which Suffolk claimed for the LIPA scenario over the settlement.

Mr. Talbot defended his use of the unamended Lazard study by calling it "the only comprehensive and systematic comparison of [the settlement vs. LIPA] performed to date." However, in fact, Mr. Talbot had not felt the study was a proper comparison at all, since he substituted some of the assumptions that had been used in an earlier (March) Lazard study -- on the basis that the subsequent changes were "based on inconsistent data ... or were inadequately justified." CPB defends the changes as incorporating "more realistic values which Lazard accepted on the basis of comments from 'Staff, the investment community and others.'" The Board argues that Mr. Talbot arbitrarily took only those assumptions from the March study which, when superimposed on the June study, would make LIPA look better vis-a-vis the settlement.

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[1] Mr. Talbot responded generally, to the Staff and CPB rebuttal, by saying that a public power scenario basically has to be cheaper than any scenario continuing LILCO as a private entity, because of the large tax advantages, and that a contrary result can only be obtained by "torturing the numbers." But CPB says that it was Mr. Talbot himself who performed the torture.

Staff and CPB also reject Suffolk's assumed $15 share price for a LIPA takeover, noting that this is below the forecasted book value of LILCO stock under the settlement at the end of 1988 (approximately $17) and hardly above LILCO's current trading range. The Lazard study, Mr. Stewart said, properly assumes a takeover price above book value, which is the common experience of successful takeovers. CPB observes that absent the settlement, book value would be nearly $18 at year-end 1988, justifying Lazard's $19 takeover price assumption.[1]

Mr. Stewart and CPB additionally criticized Mr. Talbot's 9.0% initial interest rate for LIPA debt, pointing to his failure to consider the effect of a huge $8-9 billion LIPA debt issue on its interest rate or on the cost of other New York State borrowings. Staff says that an unprecedented huge financing, by an entity with no track record, could not be undertaken without a significant interest rate premium, and it would undoubtedly increase the cost of other New York State and municipal debt issues. CPB meanwhile asserts that the Lazard 9.25% estimate was clearly sound, since it derived from an 8.6% figure for A-rated securities, requiring a .2-.3% adjustment to reflect LIPA's expected BBB rating and a further .25-.5% adjustment due to the size and controversiality of the issuance.

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[1] The Board adds that while the current stock price reflects the prospect of the settlement, on the other hand it also reflects concern about the Company's survival; and that Mr. Talbot ignored the likelihood of LIPA being unable to act on any offer in excess of its last (rejected) $12 offer, as testified to by CPB witness Kessel.

Staff and CPB disagree too with eliminating the $600 million LIPA contingency, an adjustment which they hold unreasonably favors a LIPA scenario, and which LIPA's own consultant does not support. Mr. Stewart said that Mr. Talbot did not mention how he considered the possibilities of a higher acquisition price or a $1 billion IRS deferred tax recapture, in eliminating the contingency allowance.

Next, Mr. Stewart rejected the 42.5% equity ratio goal which Mr. Talbot attached to the settlement in his analysis; Mr. Stewart argued that LILCO must maintain low equity ratios if it is to minimize the RMC deferrals, and that the use of a higher equity ratio incorrectly portrays higher costs under the settlement. CPB too defends the 32.5% equity ratio targeted by the settlement as reasonable in view of LILCO's projected low business risk and lack of plans for issuing new equity.

Further, Mr. Stewart criticized Mr. Talbot's reflecting increased costs for preferred stock and common equity after 1991 while failing to explain why the cost of capital would rise at that time, considering the movement toward bidding for new generation capacity and other reduced risks. Also, said Mr. Stewart, Mr. Talbot failed to reconcile his 13.0% assumed 1992-2003 equity return with recent Commission allowances between 11% and 12% for other utilities (mostly in settlements). CPB argues similarly.

Mr. Talbot defended his assumptions on the basis that the settlement parameters provide coverage ratios below those supported in the Commission's Generic Financing decision (Op. 82-22), and that the Commission has approved higher equity returns. But CPB deems it absurd to suppose that the Commission would choose to supersede the settlement and allow higher equity returns to run LILCO's coverage up faster. The Board adds that Mr. Talbot ignored the likelihood that LILCO's relative risk would decline during the settlement period; that the higher equity returns to which he referred date from the early '80's when money costs in general were much higher; and that its own analysis (discussed earlier) demonstrates the current reasonableness of the settlement's capital cost parameters.

Mr. Stewart also pointed to major unexplained differences between Mr. Talbot's analysis and Staff's in O&M expenses (noting a $3.63 billion Talbot figure for 2002, whereas Staff's was $2.8 billion), and CPB notes an incorrect portrayal of the settlement's oil price escalation assumptions.[1]

2. Other Suffolk Arguments

In addition to its rate comparison, discussed above and presented via testimony, Suffolk offered several further criticisms of the settlement on brief. It should be kept in mind that since the other parties had no prior hint of these claims, their ability to meet them was prejudiced. Also, LILCO argues that Suffolk's attempt to include additional provisions in the settlement should have been made during the negotiations and is inappropriate at this stage.

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[1] Staff and CPB reject, too, a Suffolk point about the possible failure of NYPA to obtain legislative authority to finance plants with tax exempt debt. They point out that the calculations supporting the settlement do not assume that NYPA or independent producers will build any plants, conservatively assuming instead that LILCO will construct all future plants, which Mr. Stewart thought probably overstates the true cost of generation capacity.

a. Guaranteeing Shoreham's Closure

Suffolk claims that the agreement does not guarantee Shoreham's prompt and permanent closure, saying that the language "is neither complete nor conclusive," and that "the public does not trust LILCO and cannot be certain that Governor Cuomo's successor in office will share his convictions against the operation of Shoreham." Suffolk proposes three remedial measures: (1) a requirement that in the event the NRC does not approve the license transfer to LIPA, LILCO will nevertheless take the necessary action to permanently disable the plant; (2) LIPA and NYPA should execute a final agreement for the prompt decommissioning, decontamination, and disabling of Shoreham, with consultation from Suffolk County, before the Commission acts on the settlement; and (3) a provision barring any change in the agreement without Suffolk's consent. Suffolk goes on to detail the steps that it feels must be taken to ensure that the plant never operates (fuel removal, decontamination, and physical disablement).

Staff replies that Sections 5 and 9 of the Transfer Agreement provide that once the settlement is effective, LILCO must remove Shoreham's radioactive fuel and transfer the plant to LIPA, which by statute must decommission it. LILCO points out that the identity of the Governor and his views would be irrelevant since LIPA, and not the State, will own the facility. CPB meanwhile quotes the view of Suffolk's own special counsel in the NRC proceedings that the settlement would preclude Shoreham's operation. Both Staff and CPB reject Suffolk's specific decommissioning suggestions as an unnecessary intrusion into a difficult technical area.

Staff, CPB and LILCO, signatories to the settlement, all have indicated on the record that their intent was to ensure Shoreham's decommissioning, and further, asserted their view that the language and provisions of the settlement in fact accomplish this. Suffolk has not even specified in what way it thinks they are wrong. This point need not detain the Commission.

b. Brookhaven Suit

Suffolk asserts that LILCO should be required to settle its litigation with the Town of Brookhaven seeking a $600 million property tax refund, claiming that Brookhaven over-assessed the Shoreham property. Though Suffolk says "it is not the place of the Commission to assess and levy local property taxes," the County goes on to argue about the merits of LILCO's dispute with Brookhaven. Suffolk also contends that unless this litigation is dropped, LILCO could recover its property tax payments twice -- once through their capitalization in Shoreham's book cost (which the County equates to the BFC) and again through the lawsuit.

Staff and CPB reject this notion, pointing out that any Brookhaven refunds would be flowed through to ratepayers.[1] Indeed CPB says that to force LILCO to drop this lawsuit would deprive its ratepayers of possible refunds, as well as unreasonably interfering with its rights as a litigant.

Suffolk's position here is without merit. Had Suffolk joined in the settlement, it might have obtained some concession on this issue, but Suffolk has stood aloof from the settlement and now complains that no such concession was made. Meanwhile, ironically, the County was granted a sizeable pertinent boon in the settlement -- the schedule of payments in lieu of property taxes -- a concession to Suffolk's interests despite Suffolk's own nonparticipation (and a provision which, perversely, Suffolk criticizes as somehow usurping its property taxing authority). With Suffolk not a party to the settlement, the County was not even entitled to the payments in lieu of property taxes, and manifestly is not entitled to have LILCO forced to drop the Brookhaven lawsuit. Furthermore, that lawsuit seeks to recover, for the benefit of ratepayers, tax payments that LILCO feels were excessive; and as LILCO points out, it has always sensibly been the Commission's policy to encourage utilities to pursue such tax refunds.

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[1] And LILCO denies that the BFC is a proxy for Shoreham costs.

c. Ninety Day Deadline

Suffolk claims that the agreement's requirement for Commission approval within 90 days denies due process and has resulted in an inadequate record. Suffolk complains about the denial of its motion that a schedule be established for cross-examination of its rebuttal testimony and for the prefiling of rejoinder by the County (though cross-examination of rebuttal was in fact scheduled, for July 27; and Suffolk's witness was allowed to present oral rejoinder testimony when he took the stand). Suffolk also renews its request, denied by the Judge, to subpoena representatives of Lazard Freres to testify about the rate comparison studies, contending that Lazard has played an integral role in the Shoreham controversy as consultants to LIPA, with their reports and studies being utilized and referred to in testimony here. Only via the requested subpoena, Suffolk contends, could the record fully substantiate what is the least cost energy future for Long Island.

Staff says that the 90 day deadline was required by the circumstances surrounding the settlement, and that while this did mean a tight schedule, Suffolk was given a fair and reasonable opportunity to be heard. CPB says that the record contains abundant testimony on the points raised by Suffolk, sufficient to resolve them, and points out that Suffolk's subpoena request did not come until the final hearing. CPB quotes from the oral ruling denying the request, which had noted Suffolk's prior failure to pursue its discovery rights with respect to the Lazard study. LILCO in fact holds that Suffolk "manufactured" its due process claim by failing to engage the Lazard study in a timely fashion.

Despite the 90 day time constraint, Suffolk was given a reasonable opportunity to make its case, and did in fact submit both direct testimony and surrebuttal (after having cross-examined the other parties at length). The subpoena request was untimely coming on the final hearing day, and in any event, the issue with which the subpoena request was concerned -- the settlement/LIPA rate comparison -- can readily be resolved without direct evidence from Lazard personnel.

d. Pending Federal Case

Suffolk finally asks the Comission to desist from approving the settlement until it evaluates the alternative possibility that LILCO will be unable to obtain an NRC operating license, pointing to a pending federal case seeking to nullify the NRC's new emergency planning rule.[1]

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[1] State of New York, et al. v. United States of America, et al., Docket No. 88-1121 (1st Cir. 1988). The NRC's new rule could overcome a need for local cooperation in evacuation planning.

The settlement, Suffolk contends, "would require the ratepayers to pay top dollar for nothing in return" if the plant proves unlicensable. And the County says that under such circumstances, the Commission should "fashion rates that require the ratepayers to pay nothing more than can legitimately be assigned to them as costs for which they -- not LILCO -- are responsible," suggesting that LILCO was imprudent in proceeding with Shoreham after 1983, when Governor Cuomo announced his opposition.

In its reply brief, Suffolk adds that LILCO has been teetering on the edge of bankruptcy and is therefore in a poor position to bargain for an outcome more favorable to it than Suffolk proposes, being assertedly apt to settle for anything that avoids bankruptcy.

CPB says the proposed delay "would accomplish nothing except possibly the licensing of Shoreham," since the settlement lapses on September 22 unless LILCO chooses to extend it, and the NRC might grant a license at any time. CPB is not as confident as Suffolk as to the outcome of the First Circuit case. Staff similarly castigates Suffolk's "wait-and-see" approach as fostering continued uncertainty, and points out that any decision by the First Circuit would likely be appealed.

Suffolk's premise here is that if Shoreham becomes unlicensable, the settlement's rate levels could be significantly reduced. As will become clear in further discussion, that premise is invalid. In any event, an appealable First Circuit decision would certainly not by itself seal Shoreham's doom.

V. RATE DESIGN

A. Generally

Staff witness Treiber, noting that the settlement is silent about rate design, proposed that the provisions of Opinion 88-3 (January 25, 1988) -- dealing specifically with LILCO's rate design, revenue allocation and marginal cost issues -- should be applied to the first year rate increase here, scheduled for December 1, 1988, if the settlement is approved.

He added, however, that should marginal costs change significantly, some rate revision may be in order. Also, he said, considering the lead times needed to order and install meters as well as to inform customers, expansion of mandatory and optional time-of-use rates should promptly be considered, as well as curtailable rates or other DSM associated time-of-use rates. He noted that LILCO was scheduled to file its annual DSM plan on August 15, 1988, allowing adequate time for review and possible implementation of these proposals or alternatives prior to the December 1, 1988 rate increase date. Other appropriate rate design issues, he observed, could also be revisited during that same time frame.

Mr. Treiber further recommended that rate design issues be reviewed again prior to the October 1, 1989 and October 1, 1990 increase dates, with LILCO to file proposed rate designs with supporting marginal and embedded cost studies by the preceding November 15 in each case. He said this would permit any fine tuning, if necessary, of DSM associated rates prior to the critical summer period of each year.

The Company had submitted a set of actual rates to implement the settlement, but subsequently stated that it would accept Mr. Treiber's recommendation. LILCO proposed to submit no new set of rates in time for consideration in this phase of the proceeding, but indicated that it would file them in time to accommodate appropriate review prior to the December 1, 1988 effective date.

B. Stand-by Service Rates

In-Novo Engineering and Development Company objects to LILCO's rate design for back-up service to on-site generators. LILCO's rates were more or less based on principles used to develop Con Edison's and Niagara Mohawk's rates for this service, which in turn developed out of the Commission's on-site generation rate proceeding, Case 27574, concluded by Opinion 82-10 (May 12, 1982). In LILCO's rate Case 29484, In-Novo attacked LILCO's stand-by rates as violating both Opinion 82-10 and PURPA.

In-Novo's contentions were there rejected. However, In-Novo claims that its points did not receive proper consideration, alleging that the Administrative Law Judge did not understand the arguments, and for that reason simply adopted Staff's position (and that the Commission simply affirmed the Judge).[1]

In-Novo's basic claim appears to be that rates for back-up service to on-site generators should not exceed the firm service rates applicable to the classes to which on-site generators would belong but for the fact that they generate power. According to In-Novo, the regular firm service rates for S.C. 1 and S.C. 2 (small residential and small commercial) are appropriate as alternatives to stand-by rates *per se*, but that this is not true for larger residential and commercial classes where time-differentiation and demand charges come into play.

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[1] In-Novo may again claim here that its position has not been given full, fair and informed consideration. In-Novo's representative, Mr. Howard Rapaport, was allowed to make three public statements and was given a full opportunity to cross-examine the witnesses of all parties (which he did at some length, interspersing his questioning with extensive statements and explanations of his position). He also submitted a brief. Although In-Novo's participation has been considerably less than lucid, an effort has been made herein to give In-Novo a full hearing.

For those larger customers who co-generate, special back-up rates have been designed, and these are the rates In-Novo criticizes. The two features of these back-up rates to which In-Novo apparently objects are the demand charge and the higher energy charges at peak times.

The demand charges here only cover distribution capacity costs, and hence have a small effect on bills. Thus, as Staff observes, the existing rates actually come fairly close to In-Novo's position advocating energy-only rates. Nevertheless, In-Novo is apparently aggrieved by any demand component in back-up rates, because cogenerators seeking back-up service would tend to have a high potential demand in relation to their energy consumption. And as to the time-differentiated energy rates, In-Novo is concerned that a cogenerator whose unit fails at a peak time would pay too much.

The upshot, according to In-Novo, is that because of the two mentioned features, the back-up rates still recover greater revenues from on-site generators than from firm customers with identical load characteristics. And this, In-Novo claims, violates both Opinion 82-10's holding that firm service rates must be made available to all on-site generators, and PURPA's antidiscrimination provisions, again because stand-by customers whose generators happen to fail during system peaks would pay more heavily than In-Novo thinks they should.

In-Novo further contends that "these rates recover unequal costs for equal load characteristics from stand-by customers compared to their class of origin, and are discriminatory as a consequence." In-Novo says that LILCO's rate design shows "an arbitrary and unexplained point of intersection of equal cost recovery and equal load characteristics between firm and stand-by rates" and "indicate average cost recoveries of the class of stand-by customers far in excess of the class of origin without substantiating this result by actual data." In-Novo believes that the Company opposes its position because to design rates in the way In-Novo proposes would stimulate the development of co-generation, which in time would compete with the Company itself.

In their replies, both Staff and the Company contend that In-Novo's raising this issue is inappropriate in this phase of the proceeding, whose purpose is to determine the merits of the settlement, and not to resolve rate design issues. They also argue that In-Novo is merely resubmitting arguments made, and rejected by the Commission, in prior proceedings. LILCO points out that if In-Novo is really contesting the Commission's January 5, 1988 Opinion 88-3, establishing a rate design for LILCO, then the proper recourse would have been to file a motion for rehearing.

As to the merits, Staff interprets In-Novo's submissions as seeking to charge on-site generators the average rate per KWH for the service class to which they would normally belong, with no discrete demand charges or time-differentiation. And according to Staff, this was rejected in Opinion 88-3, because the absence of demand charges and time-differentiated rates would send these customers the wrong price signal, conflicting with sound rate design policies. Staff deems this concern particularly critical right now because of LILCO's current capacity deficiency. As to the claimed violation of PURPA, Staff replies that there is no discrimination because under LILCO's tariffs all back-up customers can take service under firm rates. In fact, Staff notes, In-Novo's specific proposed rates (if corrected for subsidization of low load factor customers) would produce rates which, even though they are confined to energy charges only, would closely resemble the S.C. 2L rates from which they would be derived (and which are already available as an option to on-site generators between 7 and 500 KW).

LILCO meanwhile defends its rates against the allegation of non-compliance with Opinion 82-10, pointing to five features which Opinion 82-10 prescribed for on-site generators, and contending that its rate design incorporates all of these features. And, like Staff, LILCO argues that

In-Novo's position would, if adopted, decrease rather than enhance pricing efficiency.

It is true, as Staff and LILCO argue, that this is not a rate design proceeding. However, as was evidenced by Mr. Treiber's testimony, it is necessary to give some thought to rate design if the settlement is approved, since it would mean a 4.9% increase on December 1, 1988.

Accordingly, In-Novo's arguments can be entertained on their merits -- and rejected. Even leaving aside the fact that In-Novo's position has been rejected before, it is just fundamentally wrong.

The obvious reason why In-Novo wants cogenerators to be charged only for energy, and with no time differentiation, is that they take little energy, but may need it on-peak. But this is precisely the kind of situation for which demand charges and time-of-day rates were invented. The concept of a demand charge is that the Company must stand ready to supply a customer's maximum demand, and it costs the Company something to do this, even if the customer only makes use of the capability rarely (or, for that matter, never). Also, it is the potential for demands at the peak that drives the Company's capacity construction program. This is the reason for having time differentiation. Peak time-related charges are appropriate and desirable for the sake of fairness, in properly distributing costs among customer types, and they are also economically efficient in giving customers the correct signal with respect to the costs that their potential demands at the peak impose on the system. And this is all just as true for cogenerators with backup service as it is for other types of customers. To switch to a system of energy-only charges without time differentiation for such customers would undermine the foregoing principles.

As has been pointed out, cogenerators seeking backup service still have the option of simply taking the regular firm service rates that would otherwise apply to them. And despite its rhetoric about seeking equivalence to rates for the classes to which cogenerators would belong but for their cogeneration, In-Novo actually wants rates more favorable than that equivalency would give them.

VI. DISCUSSION

The issue at hand is difficult, calling for a balancing of many considerations, risks and imponderables. But the undersigned believes this settlement is not consistent with the public interest.[1]

The Commission's December 1987 Opinion 87-26 (denying rate relief for LILCO) is a proper starting point for analysis. The Commission declined to provide additional cash flow enhancement on the ground that it would prolong the deadlock over Shoreham, an uncertainty which it said (p. 5) "raises costs, saps LILCO's financial resources, inhibits power supply planning, consumes the attention of top management, and poisons the Company's relationship with its customers and the government that they elect." The Commission also addressed the need to plan for power supply if Shoreham does not operate.[2] It concluded by saying that it expects the parties to the Shoreham controversy to "break the long deadlock so that the Long Island community can look to the future with assurance that their power supply will be safe, adequate, and reasonably priced."

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[1] Stronger language has been employed: the New York Times has called this settlement "preposterous" and a "monumental error" (May 13, 1988), and the U.S. Secretary of Energy has labelled it a "travesty," both for reasons similar to those put forth herein.

[2] And, in compliance with the Commission's directive, the Company in April filed a plan for meeting power needs without Shoreham.

Staff, LILCO and CPB all cast the pending settlement as the logical response to that Opinion 87-26. Unquestionably, the parties have endeavored to do what the Commission wanted. However, it goes without saying that the Commission still must now determine whether the particular settlement terms before it are consistent with the public interest. Opinion 87-26 did not commit the Commission in advance to approving whatever resolution to the Shoreham deadlock the parties came up with. And, much though the Commission lamented the deadlock and uncertainty, it did not say that any resolution, no matter what its terms, would be an improvement. What must be determined now is whether this particular resolution to the Shoreham controversy is preferable to what would happen in the event of its rejection.

This analysis of the settlement will begin on a positive note, enumerating its benefits and addressing some objections to the settlement that are deemed meritless. The discussion will then turn to what is seen herein as the settlement's true drawback, the loss of the Shoreham asset, and to a balancing of whether the settlement's benefits are worth paying that price.

Concededly, many of the basic arguments of Staff, CPB and LILCO claiming benefits for this settlement do have merit. It is true that it would resolve a long-standing and bitterly divisive issue, ending uncertainty, and paving the way for more amicable and constructive relations between the utility and the communities it serves and their governments. It would establish a foundation for reasonable future rates calculated to restore and maintain the utility's financial integrity, moderating the financing costs that ratepayers have to bear. It would resolve much pending litigation. It also would open some new avenues for dealing with Long Island's power supply problem.

Meanwhile too, much of the public opposition to the settlement is misplaced. Many seem to want Shoreham torn down, but without ratepayers having to pay for it (or for as much of it). This just isn't possible -- as CPB's witness Kessel so forcefully argued (after many years of arguing that ratepayers shouldn't have to pay for Shoreham). The money has been spent, the bonds have to be paid; they would have to be paid by LIPA if it took over LILCO, and would have to be paid if LILCO went bankrupt.[1]

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[1] Mr. Kessel also argued strenuously that a LILCO bankruptcy would be contrary to ratepayer interests, that there is no basis for imagining ratepayers could escape the costs of Shoreham under a bankruptcy, and that indeed, in the event of a bankruptcy, which to some extent at least might free LILCO from Commission regulation, rate levels could well go higher

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It should also be borne in mind that the Commission investigated Shoreham's construction, and did disallow $1.4 billion of the cost as imprudent, which stockholders have had to eat[1] -- but the remaining prudent cost must somehow or other be borne by ratepayers. LILCO is legally and constitutionally entitled to recover an investment made in a good faith effort to assure an adequate supply of electricity to the public; and without a reasonable expectation of recovery, a utility could not be relied upon to do that.[2]

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than under the settlement. Staff meanwhile argues that a bankruptcy would plunge us into a realm fraught with uncertainty -- indeed, "chaos."

Of course, it has long been this Commission's policy to minimize ratepayer costs in the long run by maintaining our utilities at reasonable levels of financial integrity; and the Commission has never entertained seriously the option of a bankruptcy, which would be completely antithetical to its stated policy.

Incidentally, the record indicates (based on analyses by both CPB and LILCO) that the Company could probably survive through 1989 even without rate relief, avoiding bankruptcy while it pursues a Shoreham operating license.

For these reasons, bankruptcy is not an attractive alternative to the settlement.

[1] Staff points out too that preferred stockholders will be losing at least the interest on the dividends withheld from them since 1984, while common shareholders will have missed out entirely on at least a billion dollars of 1984-89 dividends.

[2] Meantime, as Staff points out -- and as the Commission recognized in its December rate order -- LILCO could not be expected to negotiate itself into financial destitution, and it would not be realistic to imagine any negotiated Shoreham abandonment encompassing an investor penalty materially greater than in this settlement.

Suffolk does of course contend that some money at least could be saved for ratepayers if LIPA were to take over LILCO. But Suffolk failed to demonstrate this. Suffolk assumed an offering price clearly lower than what would be needed to actually effectuate a takeover; its elimination of the LIPA contingency allowance was likewise overoptimistic; its assumed bond interest rate was almost certainly too low; its LILCO capital structure assumption was probably too conservative; its assumed LILCO equity return was too high; and, as CPB pointed out, the biggest error was a failure to reflect the settlement's ultimate numbers in the comparison, vitiating its validity. (Suffolk's witness' answer here -- that the unamended June study assumptions provided the only consistent comparison -- ignores that he himself had altered the June study's assumptions -- and simply fails to explain why incorrect numbers are better than correct ones.) Moreover, even if, arguendo, the numbers appeared to favor it, a takeover would be fraught with so many imponderables and uncertainties that it would not be an attractive option unless the benefits were clear and large.[1]

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[1] As Staff comments, a LIPA takeover, among other things, "would entrust Long Island's precarious power supply problem to an unproven entity." And finally, if a LIPA takeover did entail some rate advantage, this would, as Staff also noted, be largely a consequence of tax avoidance, with no net societal gain.

In any event, the Commission has no ability to bring about a LIPA takeover -- and neither, apparently, does LIPA itself. Mr. Kessel (one of LIPA's trustees) strongly indicated that, if this settlement fails, a LIPA takeover effort is unlikely to go forward, since there would not be enough votes on LIPA's board to support a buyout offer higher than the previous $12 LIPA offer rejected by LILCO.[1] It is also probable that even if it did get off the ground, a takeover effort would trigger years of conflict and litigation before it could conceivably reach fruition.[2] Consequently, it would seem unrealistic to reject this settlement on the basis that a LIPA takeover might be better.[3]

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[1] Mr. Kessel said that for LIPA to do the financing necessary for a takeover, unanimity or near-unanimity on its Board would be required. He also noted that LIPA's enabling legislation requires, for a takeover attempt, a showing that a takeover would save money for ratepayers -- and as the offering price rises, so does the difficulty of making such a showing. (Mr. Kessel added that a hostile takeover or condemnation, as alternatives to a buyout, would be even less feasible.)

[2] As Mr. Kessel observed, even if LILCO's board agreed to a LIPA buyout offer, it could be tied up by litigation on the part of minority stockholders. In addition, Staff points to legal and constitutional problems that could ultimately be held to bar a LIPA takeover.

[3] Indeed, LIPA itself -- which the legislature set up to study the issue -- disagrees with Suffolk, supporting the settlement as preferable to its own takeover options.

So, all in all, there is nothing objectionable about the settlement's rate arrangements. LILCO would require rates like this even if the plant does not operate, and there is really no way to avoid them.[1] Similar rate increases are projected under all of the alternative scenarios.

If anything, this settlement's rate arrangements are a good deal for ratepayers because LILCO has agreed to forego its claim to recovery on $380 million of investment; to phase in its FRA recovery according to a schedule emulating that which the Commission had earlier prescribed for a Shoreham phase-in; and to accept an equity return cap, assuring that its profits do not exceed a reasonable level.

There has, of course, been much protestation to the effect that the settlement's rate increases are nevertheless intolerably large and would "bankrupt Long Island." The focus has been upon the 60+% by which rates are projected to rise over the next decade. That may sound like a big increase, but it basically just tracks expected inflation. In real dollar terms, the settlement hardly increases rates at all over the decade.[1]

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[1] As noted, infra, LILCO will need rate increases of this magnitude in adherence to the Commission's policy of maintaining utilities at acceptable levels of financial integrity, regardless of any notion of Shoreham-related entitlement or what happens with respect to Shoreham or this settlement. And, as Staff points out, this is ultimately to the benefit of ratepayers, since the utility financial health contemplated by the Commission's policy is intended to minimize, over the long run, the costs that ratepayers must bear. (Even CPB says that any decrease in the settlement's rate levels "would unduly weaken LILCO's financial condition and increase the overall cost for ratepayers.").

Staff also observes that adequate rate levels will be needed if LILCO is to reverse the service cutbacks dictated by its financial constraints, and this too is ultimately in the ratepayers' interests.

Finally, on this point, it seems unrealistic to seek a renegotiation of the settlement with better terms for ratepayers (assuming that Shoreham is still to be scrapped). The settlement was the product of long, intense, difficult negotiations. As stated above, LILCO has already made substantial concessions. If this settlement is rejected, it is not clear what inducement, if any, LILCO would have to make more concessions.[2] In fact, the Company's testimony indicates that for LILCO, the chief benefit of the settlement is its certainty -- getting a resolution now to the whole Shoreham situation. But if this settlement is rejected, and negotiations resume, it would be some length of time before a new agreement could be fashioned, concluded, presented to the Commission, and then finally approved (assuming of course that the parties could agree on some new and different terms, which may be doubted)[1] -- but for LILCO there would scarcely be any point, because in that time it could expect to get its answer on Shoreham elsewhere -- from the NRC. Once this settlement is rejected, it would seem to make more sense from the Company's standpoint to concentrate on getting the plant licensed than to try to make a new agreement for its abandonment.

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[1] And, in fact, Staff points out that over the full 15 year period studied, rate increases under the settlement are projected to average lower than inflation.

[2] Nor is it clear, as suggested already, that it would be desirable for LILCO to do so. Staff signed on to this settlement because it provided a reasonable blueprint for LILCO's financial recovery, and Staff might well drop out of the settlement if that financial recovery is materially compromised in a renegotiation. CPB likewise indicated that it would not favor rate levels below the settlement's.

As stated, the foregoing paragraph was based on the notion of renegotiation with Shoreham still to be scrapped. Of course, another alternative would be fresh negotiations seeking an end to opposition on licensing. In that case it would be entirely conceivable that LILCO would offer more concessions to ratepayers than it has in the present settlement. In the present settlement, LILCO's biggest concession to the other side was to give up the plant, in return for which the State had to make some rate concessions to LILCO. If the plant issue, on the other hand, goes in LILCO's favor, then the rate concessions should logically be expected to reverse direction as well.

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[1] As Staff points out, it cannot be taken for granted that all parties to the settlement would want to take part in fresh negotiations, and previously resolved matters would be back on the table. The settlement allows its signatories to withdraw from it and pursue their own positions if it is not approved within the stipulated period. Thus Staff urges that the Commission refrain from seeking renegotiation.

Such further rate concessions might be feasible because LILCO's financial profile should be more attractive to the investment community with the plant in service and going into rate base in a more or less conventional manner, than with the asset being scrapped; and also because (as seen infra), there should be a long-run economic benefit to running the plant (though if the settlement's near-term rate levels are to be bettered, this would probably mean LILCO accepting some stretch-out of the plant's rate phase-in).[1]

The true issue then is whether the settlement's benefits are worth the tradeoff of scrapping a completed $5.3 billion nuclear power plant.[2] While of course the Commission's mandate does not directly extend to determining whether Shoreham should open or close, this settlement -- indeed, as its centerpiece -- does stipulate the plant's demolition, and thus to approve the settlement is to approve Shoreham's demise.

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[1] In other words, this settlement is about the best that could be expected with a Shoreham abandonment; but if the parties had responded to the Commission's December Opinion by going in another direction, negotiating a settlement contemplating Shoreham's operation, then a better overall deal for ratepayers might have been the result.

[2] As stated earlier, the Commission's December 1987 rate opinion did not prejudge this issue. In fact, it expressly emphasized (p. 7) that the Commission was not then "taking sides as to the merits of the company's effort to license Shoreham...." This settlement now presents the bottom-line Shoreham issue squarely before the Commission for the first time.

CPB considers this actually a benefit of the settlement, claiming a safety concern: the widespread fear that Long Island could not be evacuated in the event of an accident.

In the first place, the question is not whether "Long Island" could be evacuated. NRC rules call for possible evacuation only within 10 miles of the plant; 160,000 live within that radius (a tiny fraction of the Island's population);[1] and scientific evidence has prompted proposals to reduce the evacuation radius to five miles (which would mean only 62,000 potential evacuees).[2] In the second place, and more importantly, the whole evacuation emphasis is overblown given the virtually infinitesimal chance of an accident actually requiring evacuation. There has never been such an accident in the thousand-plus reactor-years of commercial nuclear operations in this country.[1] To scrap a $5.3 billion asset based on such an alleged safety concern is irrational in light of the multitude of far likelier threats and dangers that people live with in equanimity.[2]

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[1] And a population much less than that within Indian Point's evacuation zone. (The population figures given here are summer peaks.) It is a point of irony that many LILCO customers actually live closer to Indian Point than to Shoreham (and Nassau County is, normally, downwind of Indian Point but not downwind of Shoreham). But the State has not proposed to close Indian Point out of any Long Island-related evacuation concern.

[2] In the extremely unlikely event of an accident requiring evacuation, only residents within a few miles downwind of Shoreham would actually have to leave within hours.

It is recognized that (as the State has contended), because of the climate of fear surrounding Shoreham, an accident there could trigger panic reactions well beyond an official evacuation zone. This could be a problem, though if Shoreham operates one would hope the public might be educated to avoid it; and it must be borne in mind that whatever else may obtain outside a necessary evacuation zone, the population there should not be endangered by radiation.

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[1] Chernobyl scared a lot of people, but that was a very different kind of plant which would never have met the vastly stricter U.S. safety standards. Unlike Shoreham, Chernobyl had no containment structure to seal in radioactivity; a mode of chain reaction that speeds up rather than ceases if cooling water is lost; control rods that work ten times slower; and an ability by operators to manually disarm key safety systems.

Three Mile Island also scared a lot of people, although no tangible public harm occurred despite incredible bungling by plant operators -- demonstrating how safe U.S. reactors really are. And that episode, of course, inspired a massive series of additional safety requirements. Because of these new safety features (as well as basic design differences), it is believed that a TMI-type accident could not occur at Shoreham. (It is also noted that while some evacuation occurred at TMI, this was due to confusion rather than being required by actual danger.)

[2] A rational evaluation would assign much greater concern to the danger of a power supply outage without Shoreham than to the danger of evacuation delays during an accident.

It is recognized that however irrational it may be, the opposition to Shoreham has reached such proportions that many deem the plant's opening impossible from a pragmatic standpoint. One might even posit that if this proves to be error, perhaps it is one that, in a free country, Long Islanders should be free to make.[1] Yet one might also seek for leadership against error in the legislative and regulatory arenas.

The record here suggests that -- far from being somehow impossible -- Shoreham's operation would in fact be the likely outcome if this settlement is rejected. The NRC is continuing to move forward (despite the pendency of this settlement) to resolve the remaining licensing issues, all involving emergency planning, on three tracks: (1) the Atomic Safety and Licensing Appeal Board is completing its Partial Initial Decision ("PID," resembling our recommended decisions, but with no exceptions process) on a pair of appeals concerning reception centers and factual issues raised by LILCO's first emergency drill; (2) the Atomic Safety and Licensing Board is preparing a PID, with a completed record, on the "realism" issue and other evacuation topics (while also considering a LILCO motion to disqualify the intervenors for discovery noncooperation); and (3) the NRC has itself before it one other issue concerning LILCO's agreements with hospitals. Once PID's are issued on the other matters, they too would be ripe for final NRC action, which would be expected within a couple of months thereafter. The NRC would normally be expected to decide all such matters simultaneously, thereby making the final licensing decision. (In the meantime, LILCO has applied for a 25% license; this awaits only an NRC Staff Safety Evaluation Report, which could come at any time; and LILCO is preparing Shoreham for a targeted September 23 startup).[1]

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[1] Although it is not just Long Island whose interests are at stake. Shoreham would benefit the whole state by enhancing the capacity and fuel efficiency of the entire power grid; the air quality effects of burning more fossil fuels would affect people outside the Island; etc.

LILCO's analysis of the issues to be resolved, based upon recent NRC rulings and pronouncements, gives the Company a high degree of confidence that a full power license will be forthcoming, around the Spring of 1989. The Company does not expect to ultimately be thwarted by the evacuation planning issue. CPB's Kessel agreed; he asserted that the NRC really does want to save Shoreham, and that despite the efforts of its foes, the plant would most likely receive an operating license by the Spring of 1989.[1]

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[1] For a 25% license, the required evacuation zone shrinks to barely more than the plant site itself, thusly obviating virtually all the issues that have been litigated with respect to the full power application.

Accordingly, it would not seem unreasonable for the Commission to reject this settlement on the basis that it would prefer to see the plant licensed -- with the ultimate resolution of the Shoreham controversy, sought by the Commission in its December 1987 Opinion, being deferred for a limited period of time while the NRC wraps up its licensing process.[2]

True, licensing is not assured, and if the Commission rejects this settlement on the basis that ratepayers would be better served by the plant's opening, there is some risk that when the dust clears, the plant will be abandoned anyway. The settlement does appear to provide more certainty, which is indeed perhaps the biggest benefit

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[1] While the NRC's composition could change with a new administration, Mr. Kessel did not see this happening soon enough to stop Shoreham.

An operating license, if granted, would presumably be challenged in the courts. Both LILCO and Kessel saw little chance that the plant's operation would be stayed pending the outcome of the litigation. Mr. Kessel said that, based on his study of the legal situation, the "chances are at best 50-50 and possibly significantly less" that the license could be overturned. LILCO feels confident that the license would ultimately be upheld.

[2] With litigation admittedly sure to follow; however, as already noted, the plant could most likely operate while the court battles proceed, and it should be borne in mind that this settlement is not immune from litigation either, and its finality could well be held up by lawsuits from such parties as Suffolk County or minority LILCO stockholders, challenging the propriety of LILCO's undertaking, the Commission's approval, etc.

Staff and LILCO ascribe to it. The Commission must decide whether Shoreham's operation is desirable enough that its attainment is worth the risk.[1]

Needless to say, Shoreham likely would solve Long Island's power supply problem for at least the next decade. The most critical point is 1989's summer, for which the settlement plan concedes a significant power supply deficiency,[2] with a probability of brownouts and some danger of a full blackout.[1] LILCO's projections under the settlement do show loads being met for the remaining years, but it would be a close shave at least until the first NYPA-built base load plant comes on line in the late '90's -- the plan assumes that the contemplated gas turbines are installed on time, the ambitious (indeed, unprecedented) DSM targets are met, the Sound Cable is completed on schedule, assumed imported power is available, assumed cogeneration materializes, and the conservative peak load forecasts are not exceeded.[2] The safety margins are skimpy, with little leeway for deviations between what is projected and what actually occurs.[1] Thus, Shoreham's abandonment would leave Long Island vulnerable to power supply deficiencies.

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[1] On the other hand, the settlement is not itself devoid of risks; the most obviously worrisome is that it could leave Long Island's power supply in peril (see *infra*.) Meanwhile, to embrace the settlement's seeming certainty would be to accept the impalpable yet important risk that to have rejected the settlement *would* have resulted in Shoreham's running, which *would* have meant benefits for ratepayers. Thus, the settlement's resolution of Shoreham's fate merely masks the uncertainty of where "the road not taken" would have led; so in a sense the risks are equivalent on both sides.

Another way to look at it is to realize that uncertainty is integral to existence; and an individual can always put an end to that uncertainty by extinguishing his existence. That is essentially how this settlement would end the uncertainties surrounding Shoreham.

[2] For the summer of 1988, the situation is somewhat worse, but of course it is too late to do much about 1988.

LILCO's unusual request for a 25% operating license, while waiting for the 100% license, was aimed at getting some power from Shoreham to help meet 1989 peak loads. CPB's Kessel said that, based on his evaluation, "a 25 percent license could possibly come as quickly as before the end of this summer or certainly in the fall." Meanwhile, as explained, there would remain an excellent prospect that the 100% license itself would come before the 1989 summer peak. LILCO might also decide at some point that it makes sense to install a gas turbine as insurance in case Shoreham does not become available for the 1989 peak; the cost would be about $90 million.

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[1] The Company's loss-of-load probability study projected ten 1988 and five 1989 brownouts (though this does not fully capture the benefits of recent equipment upgrades). LILCO's witness Madsen testified that "where your probability analysis says you're going to have half a dozen to a dozen brownouts a year, what it probably says is that you're operating the system on a knife-edge many times more often than you'd like to, which really suggests that something else is going to go wrong. The closer you operate the system to its capacity, the higher and higher the probability is that something serious is going to go wrong." Nevertheless, Mr. Madsen did also say that he did not actually foresee any blackouts.

[2] Though actual annual peak demand increases have averaged 3.6% over the last five years, LILCO projects peak growth -- before even reflecting the effects of enhanced DSM -- at only 2.4% in 1989, sinking to only 1.5-1.6% for the years 1992-2004. With DSM, LILCO's projected net peak load growth rates for the years 1989-1993 average below 1.0% (Exhibit 505).

Even if everything contemplated by the settlement does fall compliantly into place, and Long Island's power needs are met without Shoreham, a price will have to be paid for this. More coal, oil and gas will be burned, with many negative ramifications. LILCO would continue to be the one utility in the nation most heavily dependent upon imported oil, a supply which is not only expensive and unreliable, but which also undermines the nation's strategic security.[2] The burning of fossil fuels also contributes substantially to air pollution,[3] contributes substantially to acid rain, and accelerates the "greenhouse effect." The latter is a long-range problem of the highest seriousness, threatening a destructive world-wide climatic and environmental upheaval, including a rise in ocean levels, flooding and drought.[1] Given these real and grave concerns, to tear down a clean,[2] operable non-fossil power plant seems tragic.[3]

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[1] A fairly detailed discussion of the supply picture appears at Transcript pages 787-808 (and see Exh. 505). It should also be noted that the agreement assumes all of LILCO's existing power plants will be run indefinitely. This may be feasible for a while; but quite a few LILCO plants are near, or beyond, their estimated useful lives, and at some point major replacement units may have to be built.

[2] While Staff's witnesses pointed out that uranium fuel is imported too nowadays, because oil looms so much larger in our overall energy picture, and because of the geopolitical ramifications of the oil market, the nation is clearly better off to the extent uranium can be substituted for oil.

[3] Fossil fuel power plants increase death rates due to respiratory effects, an impact whose magnitude vastly exceeds the health effects of nuclear reactors. It is also worth mentioning that production of fossil fuels is far more deleterious to health, life and limb than is uranium production.

The record appears to suggest that, for the short-run at least, this settlement would be cheaper to ratepayers than to operate Shoreham. This is what LIPA's Lazard Freres study, heralded by CPB, seems to show; and its results are accepted by Staff (and even apparently by LILCO, despite qualifications).

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[1] While short-term weather cannot be directly associated with this long-range trend, the severe heat wave and drought of 1988 provides a small foretaste of the significance of the world-wide warming trend, a trend to which the burning of fossil fuels contributes importantly.

[2] Staff's witnesses, in discussing the settlement's environmental ramifications, adverted to possible radiation discharges and the waste disposal question associated with a nuclear plant. Radiation discharges have historically been rare, and even TMI's was insignificant in its health effects compared to the atmospheric degradation of fossil fuel combustion. Waste disposal has been termed a political problem rather than a technological one.

[3] This would be the first time that a completed, operable U.S. nuclear power plant is scrapped, a precedent that would further cripple nuclear power's long-term prospects in this country. Admittedly, those prospects were already bleak -- but considering all the drawbacks and difficulties to which other energy sources are subject, it seems very short-sighted to cast out of our energy "tool kit" the nuclear option, which has served so many other nations so well.

The study does not show, however, that to dismantle Shoreham is economically preferable to operating the plant. In fact, it shows the opposite. To explain:

First, under the settlement, LILCO would in effect forego its potential entitlement to recovery on about $380 million of Shoreham and Bokum investment.[1] Lazard assumed that $244 million of this (the Shoreham portion) would go into rate base and earn a return in the "Shoreham-in" scenario. But even while this difference may be a potential ratepayer advantage of the settlement, it is independent of whether Shoreham operates, and is not an economic benefit to dismantling the plant.[2] So what the Lazard study shows in part is the unsurprising result that a $244 million rate base deduction reduces rates.

But the study can be recast to eliminate this biasing factor and shed more light on Shoreham's economics. This correction almost neutralizes the rate disadvantage shown for the Shoreham-in scenario over the first 15 years.

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[1] Because, again, the calculated BFC, to be booked as an asset, is about that much lower than the total of Shoreham's prudent investment plus Bokum (both of which would be written off).

[2] If LILCO was willing to absorb the write-off as part of a deal involving Shoreham's abandonment, conceivably the Company might agree to the same terms in an arrangement in which the plant operates -- which LILCO has long deemed preferable -- or the Commission could stipulate in its order here that some such adjustment would be appropriate in the event the plant operates.

A second key point is that in Lazard's study, the no-Shoreham scenario benefits from lower assumed property taxes. This ostensible rate savings is illusory because the missing property taxes would have to be made up by Long Islanders. Again, though, it is possible to eliminate this distortive factor and thereby come closer to isolating the true economics of Shoreham's operation. With this correction, the 0.3% rate disadvantage (over the first 15 years) to Shoreham's operation becomes a 0.1% advantage.[1] When combined with the previously discussed adjustment concerning the $244 million, the result is a 0.3% advantage to operating Shoreham.

A further point is that Lazard's comparison favored the no-Shoreham scenario in the short run partly because in the early years it avoids much of the cost of the major replacement plants, which would not kick in until around the turn of the century. Thus, at best, Shoreham's closing might represent not a saving but a postponement of costs; and LILCO's projections, even using Lazard's as the base (without the needed adjustments discussed above), show an economic benefit to running Shoreham over the plant's full 40-year life.[1]

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[1] Suffolk's witness too recognized that the settlement's only saving compared with the Shoreham-in scenario is in taxes other than FIT, primarily property taxes. The witness said that since the reduced property taxes are "a 'transfer payment' among Long Islanders, there is no real saving at all."

Another factor is Lazard's assumption of lower capital costs (because of a lower equity ratio), per the settlement, than if Shoreham operates. This assumption is not necessarily obvious. While the settlement would reduce some existing risks, it is another matter to posit that risks over the entire period in question would be lower than if Shoreham operates and is in rate base.[2] (Though under the settlement LILCO would avoid major new construction and its attendant risks, this should likewise be true if Shoreham operates.)

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[1] The benefit was calculated to be small in present value terms, mainly because when discounted to 1988 present worth, even large sums gained in the latter part of the study period practically vanish. Perhaps it is short-sighted to use present worth analysis to virtually dismiss ultimate future consequences of today's decisions.

Moreover, we have become accustomed to power plants being run well beyond their theoretically expected useful lives, due to the prohibitive replacement costs. While a nuclear plant can only be licensed for forty years at a time, there is every reason to expect that Shoreham's physical operating life could be far longer, and that a relicensing to exploit this would be forthcoming. If so, Shoreham's true long-term benefits -- which this settlement foregoes -- could be very great. (Thus, it is plainly inconsistent for the settlement's calculations to assume virtual immortality for LILCO's existing plants but only 40 years for a Shoreham-in scenario.)

[2] The degree and nature of regulatory support would play a significant role here; it seems possible that if Shoreham were licensed and placed into rate base, in a supportive regulatory environment, investors would feel more secure (and hence capital costs in the long run would be lower) than in an environment in which a $5.3 billion asset is scrapped -- while the utility foregoes its claim to recovery on $380 million of investment -- and while power supply for the service territory is left vulnerable.

The Lazard study also erred in assuming that DSM expenditures would be the same regardless of whether Shoreham operates, whereas in reality LILCO would have to spend considerably more on DSM to contain its peak load growth if the plant is abandoned (which in turn would also mean lower sales and revenues). And finally, the Lazard study incorrectly front-loads the Shoreham-in rate pattern by assuming a straight-line decommissioning accrual, whereas the Commission actually uses a real dollar levelization approach with much lower early year ratepayer charges. The upshot of both these points is again to understate the economic advantage to ratepayers of operating Shoreham.[1]

In the end, what the facts and figures really show is no different from what common sense suggests: that to operate a sound, freshly built nuclear power plant is economically preferable to tearing it down and building gas turbines and other fossil-fueled plants to replace it.[1]

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[1] LILCO's witness Madsen indicated the existence of other problems in the Lazard study, having this same tendency, but these further points were not developed on the record.

It is recognized that there are also some respects in which the Lazard study apparently erred in Shoreham's favor. It assumed that the massive contemplated October 1988 refinancing would go forward in either scenario. Realistically, were this settlement rejected, the refinancing could probably not occur until Shoreham is licensed, delaying the onset of the interest cost savings. The study was also conservative in assuming that LILCO would itself construct any new capacity, without the benefit of tax-exempt financing.

Long Island's electric rates are already nearly the highest in the nation. Many people have a hard time coping with their bills, and the high rates don't do the Island's economic vitality any good. To scrap a $5.3 billion investment, making electricity costlier than it need be, is not in the public interest.

It is again recognized that scrapping Shoreham is not all this settlement does, and that the plant's closing is traded off against some beneficial provisions.

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[1] Staff's witnesses stressed various risks to operating Shoreham, such as the risk that the plant might someday be closed by NRC edict like Indian Point 1 was (though it is very hard to believe this could ever happen to Shoreham, built in compliance with the vast panoply of post-TMI safety requirements), or that it may require costly unforeseen capital additions (same comment), or that it simply won't run as well as projected. But as suggested earlier, all courses involve risks, simply because the future is uncertain, and this is no less true of a dismantling. For example, loads could grow faster or oil prices could rise more steeply than projected -- both entirely conceivable -- in which case scrapping Shoreham would ultimately be seen as a grievous mistake.

As to the power supply arrangements, of course, if Shoreham were to operate they would be unnecessary.[1]

The settlement's other key tangible benefit lies in its rate arrangements, restoring the Company's financial health. But (though admittedly the rate increases would go down more smoothly as part of this broad-based settlement) if this rate plan is indeed proper and desirable, aimed at gaining benefits for the public, the Commission does not have to embrace this settlement -- and the scrapping of Shoreham -- to implement it. The Commission can independently order the three years of rate increases, and stipulate that if Shoreham does not operate, LILCO will book the FRA, thereby insuring the rate increases contemplated for the rest of the period.

Staff witness Stewart testified that this "certainly is the most important feature of the settlement," and that he had no problem with doing the same thing outside the settlement. (Indeed, Staff testified that, regardless of what happens to the settlement or Shoreham itself, this rate plan or something very much like it will be unavoidable if

---

[1] And if, alternatively, the settlement is rejected, but for other reasons Shoreham is ultimately closed, power supply arrangements similar to those in the settlement could still be implemented. This would certainly be required by the public interest, to prevent supply disruptions on Long Island, and presumably the necessary undertakings by responsible state entities would go forward. (Although if Shoreham is not available for 1989's summer, this might not be known in time to get the gas turbines installed.)

LILCO's financial viability is to be maintained consistent with long-standing Commission policy.)[1]

In sum, then, the settlement's biggest ostensible benefit is not really a benefit of the settlement at all; it is not something for which Shoreham's abandonment must be traded.

Finally, it is again recognized that the settlement does entail intangible benefits in resolving once and for all a long and bitter conflict, terminating litigation, ending uncertainty, and thereby setting the stage for a more cooperative and productive relationship between LILCO and its service territory. This is a genuine and valuable consideration, but not a dispositive one; though peace is tempting, it carries a price.

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[1] Staff's witnesses did say that such rate action, without the settlement, might not gain as much for LILCO in the eyes of the financial markets because they might remain concerned about whether the Commission would follow through. This is a valid point, worthy of consideration. However, it is also possible that as between endorsing a settlement involving the destruction of a $5.3 billion asset, on the one hand, and on the other, taking strong independent action showing a committment to maintain the financial health of an embattled utility, the latter could conceivably result in gaining more credit from the financial markets not only for LILCO but for the state's utilities generally, with corresponding ultimate benefits for ratepayers.

It is the view of this analyst that the settlement merits rejection because its benefits are insufficient to justify the destruction of a $5.3 billion facility whose operation would solve Long Island's critical power supply problem, would be safe, clean and environmentally beneficial, and should save Long Islanders money. A better alternative would be to look to the NRC to grant an operating license as soon as possible.

FSR:ceb/mkr
September 1, 1988

APPENDICES OMITTED

Appendix III

Additional Material Submitted by the Department of Energy

The Secretary of Energy
Washington, DC 20585

June 13, 1989

The Honorable Mario M. Cuomo
Governor of New York
Albany, New York 12224

Dear Governor Cuomo:

There is enclosed for your information a copy of a letter sent by the Deputy Secretary of Energy to the Chairman of the New York Power Authority. The letter states this Department's position on certain aspects of the New York Power Authority's proposed involvement in the agreement under which the Shoreham nuclear power plant would be decommissioned. An identical letter has been sent to each of the other trustees of the New York Power Authority.

Sincerely,

James D. Watkins
Admiral, U.S. Navy (Retired)

Enclosure

Department of Energy
Washington, DC 20585

June 13, 1989

Mr. Richard M. Flynn
Chairman, New York Power Authority
1633 Broadway
New York, New York 10019

Dear Mr. Flynn:

The trustees of the New York Power Authority (NYPA) recently became party to an arrangement under which the Long Island Lighting Company (LILCO) would sell its completed and licensed Shoreham nuclear plant to the Long Island Power Authority (LIPA) for the sum of $1. Thereafter, LIPA would enter into a contract with NYPA pursuant to which NYPA's only responsibility would be to decommission the facility.

I write to urge that you reconsider and reject this arrangement. I believe that failure to do so will implicate NYPA's trustees in activities that are beyond their statutory authority. In addition, we submit that the arrangement is flatly inconsistent with the public interest, as defined clearly by the respective laws for which we are responsible stewards.

NYPA was created for the purpose of financing, constructing, owning, and operating electric generating facilities. In order to accomplish this purpose, NYPA would appear to have authority to decommission electric generating facilities which it owns, and has financed, constructed, and operated. Any decommissioning authority, however, seems to exist only as an incident to the prior exercise of the authority to finance, construct, own and operate generating facilities. Because NYPA did not finance or construct Shoreham, and has not and would not own or operate the plant for any productive use, NYPA's participation in an arrangement where its only function would be to decommission Shoreham seems to exceed its statutory authority.

I am informed that NYPA previously has embarked on major ventures only after specific authorization from the New York State legislature. For example, Niagara, St. Lawrence, Fitzpatrick, and the buy-out of Indian Point 3 were all authorized by statutes enacted by the legislature. In December 1988, the New York legislature rejected the proposed arrangement for Shoreham that NYPA now has been asked to effectuate. Thus, the legislature has not to this date approved any activity for NYPA with respect to Shoreham. Unilateral action by NYPA to carry out this arrangement seems directly to contradict the decision of the legislature.

In addition, in section 1001 of the Power Authority Act which created NYPA, the New York legislature proclaimed as State policy

> *** that there is a shortage of dependable power capacity in the southeastern part of the state and that the public interest requires that the authority assist in alleviating such shortage by providing such base load generating facilities as may be necessary or desirable to contribute to the maintenance of an adequate and dependable supply of electricity ***.

Section 1001 also contains a clear legislative finding of the desirability of nuclear generating facilities as an option for obtaining more electric capacity. The second paragraph states "*** that the maximum capacity of the hydroelectric developments on the Niagara and St. Lawrence rivers of the authority can be best utilized *** by provision of supplemental base load nuclear generating facilities or facilities utilizing new energy technologies." That paragraph goes on to conclude that "*** the public interest requires the authority to participate in the generation of supplemental electric power and energy by energy storage, hydroelectric, and nuclear means ***." It could hardly be clearer that the public policy of the State of New York, established by law, is that nuclear generating capacity must be used to ensure dependable power capacity, and not abandoned.

Section 1005 specifically authorizes NYPA to construct generating facilities within the Long Island service area. But clearly the assistance NYPA has agreed to provide LIPA in dismantling Shoreham is completely at odds with what the law of New York envisions as NYPA's role in the Long Island service area. In fact, the decommissioning of Shoreham will exacerbate the power shortage in the southeastern part of the State, by eliminating a desperately needed generating facility which is complete, is fully-licensed, and which could be utilized immediately to mitigate that shortage.

In addition to the trustees' action in apparent contravention of State law, NYPA will eventually be involved in the Nuclear Regulatory Commission's (NRC) consideration of the arrangement. The NRC will have to approve both the license transfer from LILCO to LIPA and the decommissioning plan for the Shoreham plant, including NYPA's role in that plan.

There are serious questions regarding the ability of LIPA to gain NRC approval for a license transfer. An entity which seeks to become a transferee of an NRC license must demonstrate that it is qualified to be the holder of such a license. To do this, LIPA would have to establish its technical, managerial and financial qualifications to engage in the activities which the license allows. LIPA, however, has no expertise in, and no experience with, any activity which involves nuclear facilities. Thus, it lacks even the pretense of being able to undertake the responsibilities for the Shoreham facility which would devolve upon it as an NRC licensee. Under these circumstances, it would seem most inappropriate for NYPA, which is itself an NRC licensee and thus very knowledgeable of the requisites for possession of an NRC license, to take part in an arrangement under which so patently unqualified an entity as LIPA seeks to become an NRC licensee.

The NRC would also have to approve NYPA's decommissioning responsibility resulting from its contract with LIPA. Issuance of this NRC license is also questionable for two reasons. First, NYPA has never decommissioned a nuclear facility and has no demonstrated technical credentials to do so. Second, NYPA was not established to dismantle nuclear power plants, does not itself have any financial interest in, or financial responsibility for, the Shoreham facility, and lacks any authority to carry out decommissioning of a facility with which it has had no other involvement. NYPA, an NRC licensee, has an obligation to refrain from endorsing by its participation such a sham of compliance with the NRC's authority.

It is well known that Long Island faces very significant energy shortages in the near term. Indeed, LILCO officials have predicted that brownouts and blackouts are possible as early as this summer. Given the state of the energy supplies of both this Nation and Long Island, it is difficult to imagine any scenario under which simply writing off the $5 billion investment already made in such a substantial and readily available source of energy as Shoreham could be deemed consistent with prudent energy policy and the public interest.

As public officials, both our duty and our allegiance must be to the duly-enacted laws that establish public policy, and not to a few influential officials whose irresponsible conduct is devoted to frustration of policies set by law. In this case the public policy established by the laws of New York counsels unequivocally that Shoreham's generating capacity must be used, and not scrapped.

The public interest and a sense of its own statutory responsibilities should compel NYPA to reconsider and reject its earlier decision to become party to the proposed arrangement.

Sincerely,

W. Henson Moore

W. Henson Moore
Deputy Secretary

cc: The Honorable Richard L. Thornburgh
Attorney General of the United States

The Honorable Lando W. Zech, Jr.
Chairman, Nuclear Regulatory Commission

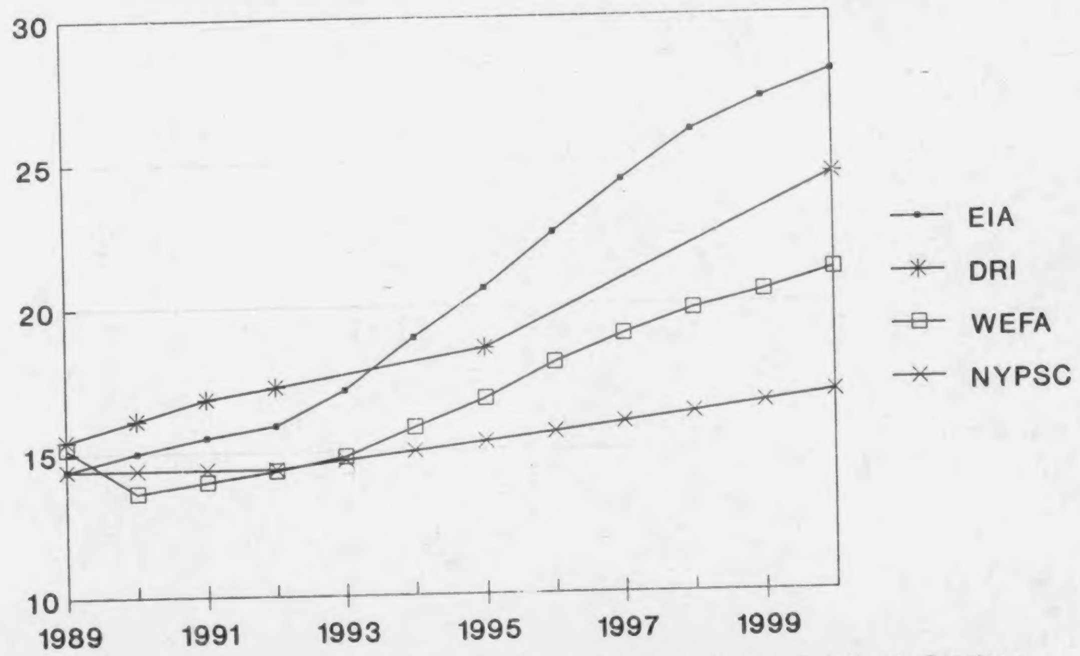
Note to Mary Ann Novak

From Mary J. Hutzler R.T. Eynon 4/21/89

Subject: Peter Bradford's letter to Senator Johnston
(April 14, 1989)

We strongly disagree with the New York Public Service Commission's (NYPSC) assumptions about oil price increases and inflation used in the evaluation of oil generation costs. From 1990 through 2000, the fuel costs for operating oil-fired plants instead of Shoreham would be about $500 million (nominal dollars) higher using the Energy Information Administration's (EIA) estimates for inflation and real escalation rates instead of the NYPSC assumptions. The NYPSC uses an inflation rate of 4.0 percent per year, compared to 4.9 percent for the EIA. The NYSPSC also assumes no real escalation in oil prices through 1992 and 2.0 percent per year thereafter. This results in an average real escalation rate of 1.3 percent per year between 1988 and 2000. The EIA results use a real escalation rate of 3.8 percent per year during the same period for oil prices. The EIA world oil price estimates are the same as those used in the 1989 Annual Energy Outlook. As shown in the attached chart, these estimates and those prepared by Data Resources Incorporated (DRI) and Wharton Econometric Forecasting Associates (WEFA) are substantially higher than those assumed by NYPSC. The assumptions used by EIA for inflation are similar to those provided by DRI and WEFA. A table with year by year fuel cost estimates for EIA and NYPSC is also attached.

Comparison of World Oil Prices
(Real 1988 dollars per barrel)



Source: EIA--Annual Energy Outlook 1989; NYPSC--Chairman Bradford's letter to Senator Johnston; DRI--Energy Review, Winter 1988-89; WEFA--Energy Analysis Quarterly, Winter 1989.

Fuel Prices and Fuel Costs of Replacing Power from Shoreham with Oil-Fired Generation Using Assumptions by the New York Public Service Commission and the Energy Information Administration
(nominal dollars)

	Fuel Prices ($/mmbtu)		Total Fuel Cost (million dollars)	
Year	NYPSC	EIA	NYPSC	EIA
1990	2.64	2.66	92.94	93.57
1991	2.74	2.82	96.65	99.41
1992	2.85	3.00	128.06	134.58
1993	3.03	3.31	135.96	148.64
1994	3.21	3.76	144.34	169.33
1995	3.40	4.22	153.24	190.29
1996	3.60	4.78	162.95	215.93
1997	3.82	5.33	173.26	241.57
1998	4.05	5.90	184.23	269.23
1999	4.29	6.35	195.88	289.75
2000	4.55	6.79	208.28	310.85
Total			1675.79	2162.14

Note: NYPSC uses an inflation rate of 4.0 percent per year. EIA uses an inflation rate of 4.9 percent per year. NYPSC assumes no real escalation in oil prices through 1992 and 2.0 percent per year thereafter, which averages out to a rate of 1.3% per year between 1988 and 2000. The average real escalation rate for EIA's oil prices is 3.8 percent per year.

Note: These results assume a heat rate of 10000 btu/kwh for oil-fired steam plants. It also assumes that the capacity factor for Shoreham in 1990 and 1991, the first two full years of operation would be 50 percent. It would increase to about 64 percent in 1992 and 65 percent by 2000.

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United States Senate
COMMITTEE ON
ENERGY AND NATURAL RESOURCES
WASHINGTON, DC 20510
Telefax Telephone # (202) 224-6163

DATE 4/18

TIME 12:55

TELEFAX

TO: Mary Ann Novak

FROM: Mary Louise Wagner

COMMENTS: What say you abt this?

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION
ALBANY 12223

PETER A. BRADFORD
CHAIRMAN

THREE EMPIRE STATE PLAZA
(518) 474-[illegible]

April 14, 1989

J. Bennett Johnston, Chairman
United States Senate
Committee on Energy and Natural
  Resources
Washington, D. C. 20570-6150

Dear Senator Johnston:

You asked about the oil price assumption that underlies the fact that LILCO customers will be better off without Shoreham. My answer put the right percentages on the wrong years.

The basic assumption is that fuel oil prices paid by LILCO will rise from current levels at the assumed rate of inflation (4%) until 1992, after which they will rise at a rate 2% above inflation, or 6%. In contrast, the price of nuclear fuel is constrained to the assumed inflation rate (4%) for the entire ten year study period in the "Shoreham-in" scenario. Of course, the above-inflation estimate after 1992 tends to dampen the economic benefit of the Shoreham settlement compared to the Shoreham-in scenario. If oil prices rise more slowly, consumers will be even better off without Shoreham.

I will be providing the additional materials the Committee requested by the end of next week.

Sincerely,

Pete Bradford

Peter Bradford

cc: Senator James McClure
    Mary Lou Wagner
    William Davis
ka:489-114

Long Island Power Authority Act

DEC 2 1986

McKINNEY'S
CONSOLIDATED LAWS OF NEW YORK ANNOTATED

Book 42
Public Authorities Law
§§ 1 to 1199

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For close of Notes of Decisions,
see Page III
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TITLE 1-A [1]—LONG ISLAND POWER AUTHORITY [NEW]

Section
1020. Short title.
1020-a. Declaration of legislative findings and declarations.
1020-b. Definitions.
1020-c. Long Island power authority; creation.
1020-d. Trustees.
1020-e. Officers and employees; expenses.
1020-f. General powers of the authority.
1020-g. Powers to provide and maintain generating, transmission and resource recovery waste to energy facilities.
1020-h. Acquisition of property, including the exercise of the power of eminent domain.
1020-i. Subsidiaries.
1020-j. Notes of the authority.
1020-k. Bonds of the authority.
1020-*l*. State and municipalities not liable on bonds or notes.
1020-m. Legal investments.
1020-n. Deposit and investment of moneys of the authority.
1020-o. Agreement of the state.
1020-p. Exemption from taxation.
1020-q. Payments in lieu of taxes.
1020-r. Repayment of state appropriations.
1020-s. Public service law generally not applicable to authority; inconsistent provisions in certain other acts superseded.
1020-t. Authority not to construct or operate a nuclear powered facility in the service area.

Section
1020–u. Employees of the authority not subject to the public employees' fair employment act.
1020–v. Equal employment opportunity and minority and women owned business enterprise programs.
1020–w. Audit and annual reports.
1020–x. Authority subject to open meetings law.
1020–y. Court proceedings; preferences; venue.
1020–z. Corporate existence.
1020–aa. Conflicts of interest.
1020–bb. Authority subject to certain provisions contained in the state finance law, the public service law, the social services law and the general municipal law.
1020–cc. Authority not to seek nor any subsidiary of the authority, to apply for or accept preference hydroelectricity.
1020–dd. Nine Mile Point II; disposition of interest.
1020–ee. Liberal interpretation.
1020–ff. Inconsistent provisions of other laws superseded.
1020–gg. Severability.

[1] Another Title 1–A is set out ante.

§ 1020.[1] Short title

This title shall be known and may be cited as the "Long Island power authority act".

(Added L.1983, c. 517, § 1.)

[1] Another § 1020 is set out in Title 1–A ante.

Effective Date. Section effective Jan. 15, 1987, pursuant to L.1986, c. 517, § 11.

Long Island Power Authority Creation and Contingency Fund. Section 9 of L.1986, c. 517, provided:

"(a) There is hereby established in the joint custody of the state comptroller and the commissioner of taxation and finance a fund to be known as the 'Long Island power authority creation and contingency fund'.

"(b) Such fund shall consist of all monies collected or received by the commissioner of taxation and finance on or after the effective date [Jan. 15, 1987] of this act [enacting this article and Public Service Law § 24–b; amending section 1005, Election Law §§ 6–142, 6–158, 14–100, 14–114, and Public Service Law § 70] from payments made by LILCO pursuant to its obligations under sections one hundred eighty-six and one hundred eighty-six-a of the tax law, provided however such fund shall not exceed eleven million dollars, and any other monies received from such payments shall be paid to the state treasury.

"(c) The monies in this fund shall be appropriated to the authority to be used for costs and liabilities incurred by the authority in the furtherance of the provisions of this act.

"(d) Notwithstanding the provisions of any general or special law, no part of such fund shall be appropriated until a certificate of approval shall have been issued by the director of the budget and a copy of such certificate filed with the state comptroller, the chairman of the senate finance committee, and the chairman of the assembly ways and means committee. Such certificate may be amended from time to time, subject to the approval of the director of the budget, and a copy of each such amendment shall be filed with the state comptroller, the chairman of the senate finance committee, and the chairman of the assembly ways and means committee.

"(e) The director of the budget shall not issue any certificate of approval until the authority has entered into a written agreement with the director of the budget providing for repayment by the authority to the state of an amount equal to the total amount expended by the state from such appropriation, on terms to be determined by the director of the budget, and a copy of such agreement shall be filed with the state comptroller, the chairman of the senate finance committee and the chairman of the assembly ways and means committee."

§ 1020-a.[1] Declaration of legislative findings and declarations

The legislature hereby finds and declares that:

Constantly escalating and excessive costs of electricity in the counties of Suffolk and Nassau and that portion of the county of Queens served by the Long Island lighting company (hereinafter referred to as the "service area") pose a serious threat to the economic well-being, health and safety of the residents of and the commerce and industry in the service area.

There is a lack of confidence that the needs of the residents and of commerce and industry in the service area for electricity can be supplied in a reliable, efficient and economic manner by the Long Island lighting company (hereinafter referred to as "LILCO").

Such excessive costs and lack of confidence have deterred commerce and industry from locating in the service area and have caused existing commerce and industry to consider seriously moving out of the service area.

The decisions by LILCO to commence construction of the Shoreham nuclear power plant and thereafter to continue such construction were imprudent.

The investment of LILCO in the Shoreham nuclear power plant has created significant rate increases, straining the economic capabilities of ratepayers in the service area, and likely will require further substantial rate increases if such plant is placed in service.

It is uncertain whether the Shoreham nuclear plant ever will go into commercial service, or if it does whether its reliability, cost of construction, operation and maintenance will be such as to provide sufficient, reliable and economic electric service to ratepayers in the service area. The very substantial financial strain of the investment in the Shoreham nuclear plant has required LILCO to suspend dividends on its common and preferred stock, severely threatening the continued economic viability of LILCO.

For all the above reasons, a situation threatening the economy, health and safety exists in the service area.

Dealing with such a situation in an effective manner, assuring the provision of an adequate supply of electricity in a reliable, efficient and economic manner, and retaining existing commerce and industry in and attracting new commerce and industry to the service area, in which a substantial portion of the state's population resides and which encompasses a substantial portion of the state's commerce and industry, are hereby expressly determined to be matters of state concern within the meaning of paragraph three of subdivision (a) of section three of article nine of the state constitution.

Such matters of state concern best can be dealt with by replacing such investor owned utility with a publicly owned power authority. Such an authority can best accomplish the purposes and objectives of this title by implementing, if it then appears appropriate, the results of negotiations between the state and LILCO. In such circumstances, such an authority will provide safe and adequate service at rates which will be lower than the rates which would otherwise result and will facilitate the shifting of investment into more beneficial energy demand/energy supply management alternatives, realizing savings for the ratepayers and taxpayers in the service area and otherwise restoring the confidence and protecting the interests of ratepayers and the economy in the service area. Moreover, in such circumstances the replacement of such investor owned utilities by such an authority will result in an improved system and reduction of future costs and a safer, more efficient, reliable and economical supply of electric energy. The legislature further finds that such an authority shall utilize to the fullest extent practicable, all economical means of conservation, and technologies that rely on renewable energy resources, cogeneration and improvements in energy efficiency which will benefit the interests of the ratepayers of the service area.

(Added L.1986, c. 517, § 1.)

[1] Another § 1020–a is set out in Title 1–A ante.

Effective Date. Section effective Jan. 15, 1987, pursuant to L.1986, c. 517, § 11.

§ 1020–b.[1] Definitions

As used or referred to in this title, unless a different meaning clearly appears from the context:

1. "Acquire" means, with respect to any right, title or interest in or to any property, the act of taking by the exercise of the power of eminent domain, or acquisition by purchase or otherwise.

2. "Act" means the Long Island power authority act, being title one-A of article five of the public authorities law, as added by this title.

3. "Authority" means the Long Island power authority created by section one thousand twenty-c of this title.

4. "Board" means the board of trustees of the authority.

5. "Bonds" or "notes" mean the bonds, notes or other obligations issued by the authority pursuant to this title.

6. "Fair market value" means the value of property, real, personal or mixed, which would be obtained in an arm's length transaction between an informed and willing buyer under no compulsion to buy, and an informed and willing seller under no compulsion to sell.

7. "Federal government" means the United States of America and any agency or instrumentality, corporate or otherwise, of the United States of America.

8. "Final determination" or "finally determined" means a judicial decision (i) by the highest court of competent jurisdiction, or (ii) by a court of competent jurisdiction from which no appeal has been taken and the time within which to appeal has expired.

9. "Governing body" means, with respect to any municipality, the body having charge of the fiscal affairs of such municipality.

10. "LILCO" means the Long Island lighting company, its subsidiaries and their successors and assigns, other than the authority.

11. "Municipality" means any city, town, village, county, municipal corporation, district or other political subdivision of the state.

12. "OCLD" means the original cost of assets, less depreciation.

13. "Prudent utility practices" at a particular time means any of the practices, methods, and acts, which, in the exercise of reasonable judgment in light of the facts (including but not limited to the practices, methods and acts engaged in or approved by a significant portion of the gas or the electrical utility industry, as the case may be, prior thereto) known at the time the decision was made, would have been expected to accomplish the desired result at the lowest reasonable cost consistent with reliability, safety and expedition. Prudent utility practice is not intended to be limited to the optimum practice, method or act, to the exclusion of all others, but

rather to be a spectrum of possible practices, methods or acts. In evaluating whether any matter conforms to prudent utility practice, the parties shall take into account the fact that the authority is a corporate municipality of the state with the statutory duties and responsibilities thereof.

14. "Real property" means lands, structures, franchises and interests in land, including lands under water and riparian rights, and any and all other things and rights usually included within such term, and includes also any and all interests in such property less than full title, such as easements, rights of way, uses, leases, licenses and all other incorporeal hereditaments and every estate, interest or right, legal or equitable, including terms for years and liens thereon by way of judgments, mortgages or otherwise, and also all claims for damages for such real estate.

15. "RCNLD" means the reproduction cost of new assets, less depreciation.

16. "Security" means any note, stock (whether common or preferred), bond, debenture, evidence of indebtedness, transferable share, voting-trust certificate or, in general, any interest or instrument commonly known as a "security", or any certificate of interest or participation in, temporary or interim certificate for, receipt for, or warrant or right to subscribe to or purchase any of the foregoing.

17. "Service area" means the counties of Suffolk and Nassau and that portion of the county of Queens constituting LILCO's franchise area as of the effective date of this title.

18. "Shoreham plant" means the nuclear powered facility designed to generate electric power owned by LILCO and located in Shoreham, New York.

19. "State" means the state of New York.

20. "State agency" means any board, authority, agency, department, commission, public corporation, body politic or instrumentality of the state.

21. "Trustees" means the trustees of the authority appointed or elected, as the case may be, pursuant to section one thousand twenty-d of this title.

22. "Valuation date" means (i) the effective date of this title, (ii) the date of the taking of the stock or assets pursuant to this title or (iii) such earlier or later date or, in the case of equity or debt securities, such period of trading days in the primary established market in which such securities are traded, as may be determined to be necessary to exclude from the determination of the market value thereof any enhancement or depreciation in value arising from the announcement, expectation or accomplishment of the taking by the exercise of the power of eminent domain or otherwise, or speculative market activity intended to cause or having the effect of causing an increase or decrease in such market value.

(Added L.1986, c. 517, § 1.)

[1] Another § 1020–b is set out in Title 1–A ante.

Effective Date. Section effective Jan. 15, 1987, pursuant to L.1986, c. 517, § 11.

§ 1020–c.[1] Long Island power authority; creation

1. For the purpose of effectuating the policy declared in section one thousand twenty-a of this title, there is hereby created a corporate municipal instrumentality of the state to be known as the "Long Island power authority", which shall be a body corporate and politic and a political

subdivision of the state, exercising essential governmental and public powers.

2. The area of operations of the authority shall be the service area.

3. The authority is not created or organized, and its operations shall not be conducted, for the purpose of making a profit. No part of the revenues or assets of the authority shall inure to the benefit of or be distributable to its trustees or officers or any other private persons, except as herein provided for actual services rendered.

(Added L.1986, c. 517, § 1.)

[1] Another § 1020–c is set out in Title 1-A ante.

Effective Date. Section effective Jan. 15, 1987, pursuant to L.1986, c. 517, § 11.

§ 1020–d.[1] Trustees

1. The authority initially shall consist of nine trustees, who shall serve until December thirty-first, nineteen hundred ninety-one, five of whom to be appointed by the governor one of whom shall be the chairman, two of whom to be appointed by the temporary president of the senate and two of whom to be appointed by the speaker of the assembly. Each trustee shall hold office until his successor has been appointed and qualified. In the event of a vacancy occurring in the office of an initial trustee by death, resignation or otherwise, the respective appointing officer shall appoint a successor, who shall hold office for the unexpired term.

2. Beginning January first, nineteen hundred ninety-two, such authority shall consist of twenty-two trustees. One trustee, who shall be the chairman, shall be appointed by the governor, and shall serve at the governor's pleasure. Twenty-one trustees shall be elected from districts established by the legislature. Each elected trustee shall be a resident of the district from which he is elected. No person who is elected or appointed official of the state or any municipality or any agency or instrumentality thereof, shall be qualified to serve as an elected trustee. Each trustee shall hold office until his successor has been elected and qualified. In the event of a vacancy occurring in the office of a trustee by death, resignation or otherwise, a successor shall be chosen to hold office for the unexpired term in the manner prescribed by the election law.

3. Prior to May first, nineteen hundred ninety-one, and each tenth year thereafter, the legislature shall establish twenty-one districts, which shall be equal in population as determined by the last federal decennial census.

4. Such trustees, shall be elected in elections conducted by the boards of election pursuant to applicable provisions of the election law. The first such election shall be held on the first Tuesday in December nineteen hundred ninety-one, and the trustees so elected shall take office on January first, nineteen hundred ninety-two. At such election seven trustees shall be elected for a term of one year; seven shall be elected for a term of two years; and seven shall be elected for terms of three years each. Each such term ending on December thirty-first of the last year thereof. Not later than July first, nineteen hundred ninety-one and each subsequent year in which a reapportionment or readjustment of such districts, takes place, the state board of elections shall determine by lot, which such trustees shall be elected for which terms. Thereafter, seven trustees shall be elected on the first Tuesday in December of each year to replace the trustees whose terms will expire at the end of such year, for terms of three years each

except that, all trustees shall be elected at the first election held after a reapportionment or readjustment of such districts. No political party shall be entitled to nominate candidates for the office of trustee at any such election.

5. Until the trustees first elected pursuant to subdivision four hereof shall have taken office, five trustees shall constitute a quorum for the purpose of organizing the authority and conducting the business thereof. Thereafter, eleven trustees shall constitute a quorum for the purpose of conducting the business of the authority. The vote of a majority of the trustees shall be required for the purpose of taking action.

6. The trustee appointed as chairman as provided in this section shall receive an annual salary which shall be set at the salary prescribed for the positions listed in paragraph (f) of subdivision one of section one hundred sixty-nine of the executive law. Each other trustee shall receive no salary but shall be entitled to reimbursement for reasonable expenses in the performance of duties assigned hereunder.

7. Notwithstanding the provisions of any other law, no trustee, officer or employee of the state, any state agency or any municipality appointed a trustee of the authority by the governor, the temporary president of the senate or the speaker of the assembly pursuant to subdivision one of this section shall be deemed to have forfeited or shall forfeit his office or employment by reason of his acceptance of a trusteeship on the authority, his service thereon or his employment therewith.

(Added L.1986, c. 517, § 1.)

[1] Another § 1020–d is set out in Title 1-A ante.

Effective Date. Section effective Jan. 15, 1987, pursuant to L.1986, c. 517, § 11.

§ 1020–e.[1] Officers and employees; expenses

The board, or the chairman pursuant to authority duly delegated to him, from time to time shall hire, without regard to any personnel or civil service law, rule or regulation of the state and in accordance with guidelines adopted by the authority such employees and consultants, including without limitation those in the areas of engineering, marketing, finance, appraisal, accounting and law, as it may require for the performance of its duties and shall prescribe the duties and compensation of each officer and employee, provided, however, that if any such employees are hired as a consequence of an acquisition of all the stock or assets of LILCO, they shall be hired subject and be entitled to all applicable provisions of (i) any existing contract or contracts with labor unions and (ii) all existing pension or other retirement plans. Notwithstanding the provisions of any general, special or local law, the board may determine that, if any pension or retirement plan becomes inapplicable or is terminated, all or such class or classes of employees of the authority as the board may determine may elect to become members of the New York state employees' retirement system on the basis of compensation payable to them by the authority.

(Added L.1986, c. 517, § 1.)

[1] Another § 1020–e is set out in Title 1-A ante.

Effective Date. Section effective Jan. 15, 1987, pursuant to L.1986, c. 517, § 11.

§ 1020-f.[1] General powers of the authority

Except as otherwise limited by this title, the authority shall have all of the powers necessary or convenient to carry out the purposes and provisions of this title, including without limiting the generality of the foregoing, the power:

(a) To sue and be sued in all courts and to participate in actions and proceedings, whether judicial, administrative, arbitrative or otherwise;

(b) To have a corporate seal, and to alter such seal at pleasure, and to use it by causing it or a facsimile to be affixed or impressed or reproduced in any other manner;

(c) To appoint officers, agents and employees, without regard to any personnel or civil service law, rule or regulation of the state and in accordance with guidelines adopted by the authority, prescribe their duties and qualifications and fix and pay their compensation;

(d) To purchase, receive, take by grant, gift, devise, bequest or otherwise, lease, or otherwise acquire, own, hold, improve, employ, use and otherwise deal in and with, real or personal property whether tangible or intangible, or any interest therein, within the state;

(e) To acquire real or personal property, whether tangible or intangible, including without limitation property rights, interests in property, franchises, obligations, contracts, and debt and equity securities, by the exercise of the power of eminent domain; provided, however, that any real property acquired by the exercise of the power of eminent domain must be located within the service area;

(f) To sell, convey, lease, exchange, transfer, abandon or otherwise dispose of, or mortgage, pledge or create a security interest in, all or any of its assets, properties or any interest therein, wherever situated;

(g) To purchase, take, receive, subscribe for, or otherwise acquire, hold, make a tender offer for, vote, employ, sell, lend, lease, exchange, transfer, or otherwise dispose of, mortgage, pledge or grant a security interest in, use and otherwise deal in and with, bonds and other obligations, shares or other securities (or interests therein) issued by others, whether engaged in a similar or different business or activity;

(h) To make and execute agreements, contracts and other instruments necessary or convenient in the exercise of the powers and functions of the authority under this title, including contracts with any person, firm, corporation, municipality, state agency or other entity in accordance with the provisions of section one hundred three of the general municipal law, and all state agencies and all municipalities are hereby authorized to enter into and do all things necessary to perform any such agreement, contract or other instrument with the authority;

(i) To borrow money at such rate or rates of interest as the authority may determine, issue its notes, bonds or other obligations to evidence such indebtedness, and secure any of its obligations by mortgage or pledge of all or any of its property or any interest therein, wherever situated;

(j) To arrange for guarantees of its bonds, notes or other obligations by the federal government or by any private insurer or otherwise, and to pay any premiums therefor;

(k) To issue such bonds or notes or other obligations whether or not the income therefrom is exempt from federal income taxation;

(*l*) To purchase bonds, notes or other obligations of the authority at such price or prices as the authority may determine;

(m) To lend money, invest and reinvest its funds, and take and hold real and personal property as security for the payment of funds so loaned or invested;

(n) To procure insurance against any loss in connection with its properties or operations in such amount or amounts and from such insurers, including the federal government, as it may deem necessary or desirable, and to pay any premiums therefor;

(*o*) To create or acquire one or more wholly owned subsidiaries in accordance with section one thousand twenty-i of this title to carry out all or any part of the purposes of this title;

(p) To negotiate and enter into agreements with trustees or receivers appointed by United States bankruptcy courts or federal district courts or in other proceedings involving adjustment of debts and authorize legal counsel for the authority to appear in any such proceedings;

(q) To file a petition under chapter nine of title eleven of the United States bankruptcy code[2] or take other similar action for the adjustment of its debts;

(r) To enter into agreements to purchase power from the power authority of the state of New York, the state, any state agency, any municipality, any private entity, or any other available source at such price or prices as may be negotiated; provided, however, that the authority shall not have the power to enter into any agreement or any negotiation for the purchase of power from the dominion of Canada, or any political subdivision, public authority or private corporation therein; but may enter into an agreement with the power authority of the state of New York for the purchase of such power;

(s) To enter into management agreements for the operation of all or any of the property or facilities owned by the authority;

● (t) To transfer any asset of the authority to one or more (i) private utility or (ii) municipal gas or electric agency established pursuant to article fourteen-A of the general municipal law, for such consideration and upon such terms as the authority may determine to be in the best interest of the gas and electric ratepayers in the service area;

(u) Subject to the provisions of subdivision six of section one thousand twenty-k of this title and after holding public hearings thereon upon reasonable public notice, with at least one such hearing to be held in the county of Suffolk and at least one in the county of Nassau, to fix rates and charges for the furnishing or rendition of gas or electric power or of any related service at the lowest level consistent with sound fiscal and operating practices of the authority and which provide for safe and adequate service;

(v) To enter upon any lands and within any building whenever in its judgment it may be necessary for the purpose of making surveys and examinations to accomplish any purpose authorized by this title;

(w) To enter into agreements to pay annual sums in lieu of taxes to any municipality with respect to any real property which is owned by the authority and is located in such municipality;

(x) To maintain an office or offices at such place or places in the state as it may determine;

(y) To make any inquiry, investigation, survey or study which the authority may deem necessary to enable it effectively to carry out the provisions of this title and, for that purpose, to take and hear proofs and testimony, and with the prior vote of a majority of the board which majority vote shall include the vote of the chairman to compel the attendance of witnesses and to require the production of records, books, papers, accounts and other documents, including public records, and to make copies thereof or extracts therefrom; and

(z) To adopt, revise, amend and repeal rules and regulations with respect to its operations, properties and facilities as may be necessary or convenient to carry out the purposes of this title, subject to the provisions of the state administrative procedure act.

(Added L.1986, c. 517, § 1.)

[1] Another § 1020–f is set out in Title 1–A ante.

[2] 11 U.S.C.A. § 901 et seq.

Effective Date. Section effective Jan. 15, 1987, pursuant to L.1986, c. 517, § 11.

§ 1020–g.[1] Powers to provide and maintain generating, transmission and resource recovery waste to energy facilities

Without limiting the generality of the powers conferred upon the authority by section one thousand twenty-f of this title, the authority shall have the specific power:

(a) Subject to the provisions of subdivision one of section ten hundred twenty-s of this title, to acquire, construct, improve, rehabilitate, maintain and operate such generating, transmission and related facilities as the authority deems necessary or desirable to maintain an adequate and dependable supply of gas and electric power within the service area;

(b) Subject to the provisions of subdivision one of section ten hundred twenty-s of this title, to acquire, construct, improve, rehabilitate, maintain and operate such hydroelectric or energy storage projects within the state as it deems necessary or desirable to contribute to the adequacy, economy and reliability of the supply of electric power and energy or to conserve fuel;

(c) Subject to the provisions of subdivision one of section ten hundred twenty-s of this title, to determine the location, type, size, construction, lease, purchase, ownership, acquisition, use and operation of any generating, transmission or other related facility, provided, however, that in making such determinations relating to electric power facilities the authority shall give primary consideration to the construction of energy efficient facilities, energy conservation, load management programs, and cogeneration in the service area;

(d) To proceed with the physical construction or completion of any generating, transmission or related facility;

(e) To apply to the appropriate agencies and officials of the federal and state governments, for such licenses, permits or approval of its plans or projects as it may deem necessary or advisable, and to accept such licenses, permits or approvals as may be tendered to it by such agencies or officials, upon such terms and conditions as it may deem appropriate;

(f) To institute suit, or to apply to any legislative body for legislation, or to take such other action as it may deem necessary or advisable in the furtherance of the purposes of this title and for the protection of its rights, if for any reason the authority shall fail to secure any such license, permit or approval as it may deem necessary or advisable;

(g) To study means of maintaining the customer base in, and attracting commerce and industry to the service area;

(h) To implement programs and policies designed to increase the efficiency of energy end use, to shift demand from periods of high demand to periods of low demand and to facilitate the development of cogeneration;

(i) To develop, with public participation, a comprehensive least-cost plan which shall consider practical and economical use of conservation, renewable resources, and cogeneration for providing service to its customers;

(j) To cooperate with and to enter into contractual arrangements with private utility companies or public entities:

(i) with respect to the construction and operation of facilities by the authority and the sale of all or part of the output therefrom;

(ii) with respect to the construction, completion, acquisition, ownership and/or operation of generating facilities, fuel, docks, sidings, loading or unloading equipment, storage facilities and other subsidiary facilities and the disposition of the output of such generating facilities; and

(iii) with respect to the construction, acquisition, ownership, operation and/or use of transmission facilities;

(k) To cooperate with and to enter into contractual arrangements with municipalities with respect to the construction, improvement, rehabilitation, ownership and/or operation of generating facilities;

(*l*) To cooperate with and to enter into contractual arrangements with the New York state energy research and development authority in connection with the planning, siting, development, construction, operation and maintenance of generating facilities of the authority utilizing new energy technologies;

(m) Subject to the provisions of section ten hundred twenty-aa of this title, to construct, maintain and operate resource recovery waste to energy facilities; and

(n) After the establishment of Long Island Power Authority (LIPA) and the commencement of its function as a utility, LIPA shall acquire from LILCO all franchise and utility service responsibilities for all ultimate consumers of gas and electricity within LILCO's former service territory, including the responsibility to provide safe and adequate service.

(Added L.1986, c. 517, § 1.)

[1] Another § 1020–g is set out in Title 1-A ante.

Effective Date. Section effective Jan. 15, 1987, pursuant to L.1986, c. 517, § 11.

§ 1020–h.[1] Acquisition of property, including the exercise of the power of eminent domain

1. The legislature hereby expressly finds and determines:

(a) The acquisition by the authority, through purchase or the exercise of the power of eminent domain, of either the securities or assets of LILCO whichever is less expensive for the ratepayers, as the authority may determine will be just to the ratepayers in the service area, is the most appropriate means of dealing with the emergency involving the economy, health and safety of the residents and the industry and commerce in the service area, notwithstanding the fact that LILCO presently may be devoted to a public use, since the public use of such property by the authority is hereby deemed to be superior to the public use of such property by any other person, association, or corporation.

(b) The authority, prior to exercising its power of eminent domain to acquire the stock or assets of LILCO, shall enter into negotiations with LILCO for the purpose of acquiring such stock or assets upon such terms as the authority, in its sole discretion, determines will result in rates equal to or less than the rates which would result if LILCO were to continue in operation.

(c) The situs of all stock issued by LILCO, a New York corporation, is the state of New York.

(d) The compensation paid by the authority to LILCO shall be just to the ratepayers in the service area who must pay such compensation.

(e) If the authority determines that it is the stock of LILCO that should be taken, the proper measure of damages shall be the fair market value thereof as evidenced by the price of such stock on the exchange on which they are traded on the valuation date since there is an established market for such stock that is reflective of its value. In no event, however, shall consequential or severance damages be awarded if control of LILCO shall have been taken by the authority.

(f) If the authority determines that it is the assets of LILCO that should be taken, fair market value would not constitute just compensation to LILCO since there is an insufficient market in the usual sense for its assets to ascertain the value thereof from the market. In determining the compensation payable for such assets, there shall be taken into consideration the capitalization of LILCO's expected future earnings.

(g) LILCO has no reasonable expectation of realizing actual earnings from the Shoreham plant or of giving effect to any earnings or returns which may have been reflected on the books of LILCO for accounting purposes. Moreover, it would not be reasonable, under current and reasonably foreseeable circumstances, to expect that the Shoreham plant would be reproduced by a public or private utility in LILCO's present position.

(h) LILCO would have to phase in over a long period of time any rate increases based on the costs of the Shoreham plant.

(i) The public service commission has imposed a limitation on the earnings which LILCO may realize on its interest in the Nine Mile Point nuclear power facility.

(j) The public service commission has imposed on LILCO imprudence penalties with respect to the Shoreham plant.

(k) In determining just compensation, the following factors shall be evaluated in deciding whether OCLD or RCNLD or neither constitutes the proper basis:

(i) LILCO is a regulated utility. Under the laws of the state providing for the regulation of utilities, LILCO's future earnings are restricted to the permitted rate of return times LILCO's OCLD.

(ii) LILCO presently is being operated as an enterprise the economic viability of which is dependent upon extraordinary financial stability adjustments by the public service commission. Such extraordinary and unprecedented rate relief was granted by the public service commission in order to provide cash flow relief to prevent LILCO's bankruptcy with the expectation that ratepayers would receive the full credit of such in lower rates, and that the public service commission required such extraordinary rate relief to be discontinued in the event that LILCO filed a petition for relief in a voluntary case under the Bankruptcy Act or if a final order for relief was entered involuntarily under such act. LILCO's lack of profitability results not from any repressive or other improper action taken by any governmental entity but from such factors as mismanagement, imprudent decisions regarding the Shoreham plant and general inefficiency.

(iii) There is no reasonable probability that, after condemnation of its assets, LILCO will reproduce them.

(iv) Use of RCNLD may result in an unwarranted windfall to LILCO and an unjustifiable penalty to the ratepayers who would have to pay it, since to the extent an award based on RCNLD would exceed an award based on OCLD, it would reflect to a large extent the effects of inflation which would not increase the value of the property to LILCO or its rate base for ratemaking purposes or to the authority for the purpose of continuing to generate and transmit electric power within the service area.

(*l*) Neither consequential nor severance damages are proper if the authority condemns all the assets of LILCO.

(m) In determining whether LILCO has any going concern value, the court shall take into consideration the fact that LILCO's continued operations are dependent upon the extraordinary financial stability adjustments granted by the public service commission.

(n) Such an acquisition by the authority of the securities or assets of LILCO serves the public purposes of assuring the provision of an adequate supply of gas and electricity in a reliable, efficient and economic manner and retaining existing commerce and industry in and attracting new commerce and industry to the service area, all of which are matters of state-wide concern.

2. In furtherance of the legislative findings and determinations set forth in subdivision one of this section, the authority is hereby authorized and empowered to acquire, through purchase or the exercise of the power of eminent domain, all or any part of the securities or assets of LILCO, as the authority in its sole discretion may determine; provided, however, that prior to proceeding with any such acquisition under this title, the board shall determine, in its sole discretion based upon such engineering, financial and legal data, studies and opinions as it may deem appropriate, that the rates projected to be charged after such acquisition and for such reasonable period of time as the board may determine will not be higher than the rates projected to be charged by LILCO during such period if such acquisition had not occurred.

3. The authority also is authorized and empowered, in its discretion, to make a tender offer or tender offers for all or any portion of the securities of LILCO at such price or prices as the authority may determine to be appropriate; provided, however that such tender offer or tender offers, in the sole judgment of the authority, will result in rates less than the rates which would result from continued operation by LILCO.

(a) The authority shall make such offer or offers or any adjustment thereof prior to acquiring any such securities or any assets of LILCO through the exercise of the power of eminent domain. The authority may pay for such securities in cash or by exchanging therefor the authority's bonds or a combination thereof.

(b) In the case of a tender offer in which a subsidiary of the authority acquires at least sixty-six and two-thirds percent of LILCO's common stock, such subsidiary may merge with LILCO and either continue in existence or dissolve, as it may determine.

(c) The provisions of section five hundred thirteen and article sixteen of the business corporation law and any other provisions of law relating to procedures in a corporate takeover, including without limitation chapter nine hundred fifteen of the laws of nineteen hundred eighty-five, shall not be applicable to the actions of the authority pursuant to this title.

(d) In determining whether acceptance of such a tender offer by the authority is in the best interests of LILCO, the directors of LILCO shall consider not only the dollar amount of such offer but the interests of employees, suppliers, ratepayers, creditors (including holders of LILCO's debt securities), and the economy of the service area and the state.

4. The authority, should it determine, in its sole discretion, to acquire the stock or assets of LILCO by the exercise of the power of eminent domain, shall not take title to nor possession of such stock or assets prior to a final determination of the amount of compensation to be paid for such stock or assets nor prior to a determination by the authority, in its sole discretion that the taking of such stock or assets will result in rates less than the rates which would result from continued operation by LILCO. Notwithstanding the provisions of the eminent domain procedure law, the provisions of subdivisions five and six shall apply to the acquisition of the stock or property of LILCO by the power of eminent domain, provided however, to the extent the provisions herein do not supersede or conflict with the provisions of such law the provisions of such law shall apply.

5. Procedure for acquisition of LILCO stock. (a) In the event the authority determines to acquire the stock of LILCO by the exercise of the power of eminent domain, having first entered into negotiations with LILCO for the purchase of such stock, the authority need not hold any public hearing on its intention to condemn such stock or on the question of the public use of such action, such finding having been made by the legislature herein. The authority shall commence such acquisition by serving upon LILCO and filing with the county clerk of the county in which the principal office of LILCO is located a notice describing the stock being acquired, the valuation date, as determined by the authority, and such additional information as the authority may reasonably deem necessary to facilitate the process of condemnation and payment. The notice shall state that it is a notice of pendency of an acquisition proceeding and that the authority will elect whether or not to pay the amount of such award when it has been finally determined. The authority also shall cause a copy of such notice (i) to be served upon the stock transfer agent or agents designated by LILCO for the transfer and registration of its stock and (ii) to be published in at least five successive issues of a daily newspaper of national circulation.

(b) Upon receipt of such notice, the stock transfer agent or agents, at the expense of the authority, shall forthwith serve upon each of the registered owners of such stock a copy of such notice. Service shall be deemed sufficient if mailed by certified or registered mail to the address of each such owner as shown on LILCO's stock transfer books. Service of the notice upon the stock transfer agent or agents and its publication shall not be jurisdictional prerequisites to the validity of the taking. Failure to notify any owner of stock to be taken will not invalidate any proceedings brought hereunder or any title acquired by the authority.

(c) Upon filing of the notice described in paragraph (a) hereof, the authority shall petition a special term of the supreme court in the judicial district in which LILCO has its principal office for the acquisition of the stock. Such petition shall be generally in the form prescribed by the eminent domain procedure law so far as consistent herewith.

(d) The supreme court in the district in which LILCO has its principal office shall have exclusive jurisdiction to hear and determine all claims arising from the acquisition of stock by the exercise of the power of eminent domain and shall hear such claims without a jury and without referral to a referee or commissioners. Notwithstanding the provisions of section nine hundred one of the civil practice law and rules, upon motion to the court by the authority, the condemnation proceeding for the acquisition of stock shall be maintained as a class action, pursuant to remaining provisions of article nine of the civil practice law and rules, and the owners of the stock shall be deemed a defendant class on the basis of the following express legislative findings:

(i) the class of LILCO stock owners is so numerous that joinder of all members is impracticable;

(ii) the issue of valuation of LILCO stock is common to all LILCO stock owners and there are questions of law or fact common to the members of such class which predominate over any questions affecting only individual members;

(iii) the claims or defenses, if any, of any representative owner of LILCO stock to acquisition thereof by the authority are typical of the claims or defenses of the class;

(iv) there are representative parties who will fairly and adequately protect the interests of the class; and

(v) the prosecution of separate actions by or against individual members of the class would create a risk of inconsistent or varying adjudications with respect to the issue of valuation and other issues common to the class.

(e) The procedure for determining just compensation shall be in the manner prescribed by the eminent domain procedure law, except to the extent such procedure is inconsistent with the provisions of this title, in which case the provisions of this title shall control.

(f) Upon the entry of an award finally determining just compensation for the stock, the authority shall have sixty days after receipt of notice of entry of such award within which to elect to proceed with the taking or to abandon such acquisition as provided in subdivision ten hereof. Notice of such election shall be served by the authority and by the stock transfer agent in the manner described in paragraph (a) hereof. If the authority elects to proceed with the acquisition, it shall deposit with the supreme court in which the condemnation proceeding was held an amount equal to the award within one hundred eighty days after receipt by the authority of notice of entry of such award. Upon the making of such deposit, the authority shall notify LILCO's stock transfer agent in writing of such deposit. The sum so depositied shall be applied as provided in the eminent domain procedure law. Upon making such deposit and giving such notice to the stock transfer agent, title to all stock described in the notice of taking shall immediately vest in the authority and the authority shall have the immediate right thereto. In the event the authority elects to abandon the acquisition, the provisions of subdivision ten hereof shall apply.

(g) It shall be a condition precedent to the payment of compensation for any such securities that such securities be surrendered to the supreme court or to such other entity, including the issuer's stock transfer agent, as the supreme court may direct.

6. Procedure for acquisition of LILCO assets. (a) If the authority shall find it necessary or convenient to acquire any real or personal property of LILCO, (other than securities), whether for immediate or future use, then the authority need not determine that such property is required for public use, since the legislature already has made such determination in this title which determination shall be binding for all purposes. The authority need

not publish any notice of its intention to acquire such property or hold any public hearing with respect thereto or to the public use of such action.

(b) When any real property of LILCO within this state is sought to be acquired by the exercise of the power of eminent domain, and after the authority shall have entered into negotiations with LILCO for the purchase of such property, the authority shall cause a survey and map to be made thereof and shall cause such survey and map to be filed in its office and in the office of the county clerk in which such property is located. There shall be annexed to such survey and map a certificate executed by the chief engineer of the authority, or by such other officer or employee as may be designated by the board, stating that the property or interest therein described in such survey and map is necessary for its purposes.

(c) Upon filing such survey and map, the authority shall petition a special term of the supreme court in the judicial district in which the property is located for the acquisition of such property or interest therein. Such petition shall describe the property being acquired, the valuation date, as determined by the authority, and such additional information as the authority may reasonably deem necessary to facilitate the process of condemnation and payment. The petition shall state that the authority will elect whether or not to pay the amount of such award when it has been finally determined. In all other respects, such petition shall be generally in the form prescribed by the eminent domain procedure law, so far as consistent herewith. Such petition, together with a notice of pendency of the proceeding, shall be filed in the office of the county clerk of the county in which the property is located and shall be indexed and recorded as provided by law. A copy of such petition, together with a notice of the presentation thereof to such special term of the supreme court, shall be served upon the owners of such property as provided in the eminent domain procedure law. The authority may cause a duplicate original affidavit of the service thereof to be recorded in the books used for recording deeds in the office of the county clerk of the county in which the property described in such notice is located, and the recording of such affidavit shall be prima facie evidence of due service thereof.

(d) Subsequent proceedings shall be conducted generally in the manner prescribed by the eminent domain procedure law except to the extent the provisions thereof are inconsistent with the provisions of this title, in which case the provisions of this title shall control.

(e) In any proceeding involving the valuation of LILCO property taken by the authority the supreme court shall ascertain and determine just compensation for the property taken as of the valuation date, giving due consideration to the applicable findings and determinations of the legislature set forth in subdivision one hereof.

(f) Should LILCO's property be taken by the exercise of the power of eminent domain and if LILCO shall have agreed upon the compensation to be paid therefor in settlement of the proceeding, if, LILCO shall be entitled to payment of the agreed or awarded compensation within one hundred eighty days after the date of the agreement upon the amount of the compensation or of the entry of the award, together with interest upon the amount of such compensation from the time of acquisition thereof by the authority to the date of payment of such compensation; but such interest shall cease upon the service by the authority, upon the person or corporation entitled thereto, of a fifteen days' notice that the authority is ready and willing to pay the amount of such compensation upon the presentation of proper proofs and vouchers. Such notice shall be served personally or by registered mail and publication thereof shall be made at least once a week for three successive weeks in a daily newspaper of general circulation in the county in which such property or any part thereof is located.

(g) Upon the entry of an award finally determining just compensation for the property of LILCO, the authority shall have sixty days after receipt of notice of entry of such award within which to elect to proceed with the taking or to abandon such acquisition as provided in subdivision ten hereof. Notice of such election shall be served by the authority on the owners of such property in the manner described in paragraph (c) hereof. If the authority elects to proceed with the acquisition, it shall deposit with the supreme court in which the condemnation proceeding was held an amount equal to the award within one hundred eighty days after receipt by the authority of notice of entry of such award. Upon the making of such deposit, the authority shall notify LILCO in writing of such deposit. The sum so deposited shall be applied as provided in the eminent domain procedure law. Upon making such deposit and giving such notice to LILCO, title to all property described in the notice of taking shall immediately vest in the authority and the authority shall have the immediate right thereto. The order setting forth the award, together with evidence from the clerk of the court of receipt of the amount of the award, shall be filed in the office of the county clerk of the county in which the property is located and shall be indexed and recorded in the same manner as a notice of pendency under the eminent domain procedure law. The owner or person in possession of such property shall deliver possession thereof to the authority upon demand, and in case possession is not delivered when demanded or demand is not convenient because of absence of the owner or inability to locate or determine the owner, the authority may apply to the court without notice for an order requiring the sheriff to put it into possession of such real property. Such an order shall be executed as if it were an execution for the delivery of the possession of the property. In the event the authority elects to abandon the acquisition, the provisions of subdivision ten hereof shall apply.

7. At any time the authority and its duly authorized agents and employees may, on reasonable notice and during business hours, (i) enter upon any real property proposed to be acquired for the purpose of making the surveys or maps mentioned in this section, or of making such other surveys, inspections or examinations of real and personal property and (ii) inspect and make copies of the books and records of the issuer of such securities, all as the authority may deem necessary or convenient for the purposes of this title.

8. Upon the acquisition of all the outstanding shares of stock of a corporate issuer representing all the voting rights and equity thereof, the authority shall as soon as reasonably practicable take all steps necessary to assure that the rights and claims of all the holders of any other stock and debt securities and all other creditors thereof are as secure as they were immediately prior to the acquisition by the authority. Nothing herein shall prohibit the authority from taking any appropriate and prudent action to renegotiate and restructure such debt or from purchasing the preferred stock and debt securities issued by such corporation at such prices as the authority may determine. The authority may also exchange its bonds for any outstanding preferred stock or debt securities with the consent of the holders of such preferred stock or debt securities.

9. As soon as practicable after the authority has acquired sufficient shares of LILCO stock to do so or after it has acquired all the property of LILCO pursuant to this title, the authority shall forthwith close and

decommission the Shoreham plant and shall investigate and develop alternative uses, if any, for such plant.

10. If the authority determines, in its sole discretion, that the total cost of acquisition will result in rates in excess of the rates which would result from continued operation by LILCO, the authority shall abandon the acquisition. In such event, the authority shall serve notice of such abandonment (i) in the case of a stock acquisition, by causing to be mailed by certified or registered mail a copy of such notice to each former owner of stock as shown on LILCO's stock transfer books immediately prior to such acquisition at the address shown on such stock transfer books and by causing to be published a copy of such notice in at least five successive issues of a daily newspaper of national circulation or (ii) in the case of an asset acquisition, in the same manner as provided for the service of a petition for acquisition in paragraph (c) of subdivision six hereof. In addition, in the case of an asset acquisition the authority shall file a copy of the notice of abandonment with the county clerk of the county in which is located any real property that was taken and with the clerk of the supreme court in which the proceeding was instituted.

11. The provisions with respect to the valuation of stock and property set forth in this section shall apply only to stock or property of LILCO, as the case may be, acquired by the authority by the exercise of the power of eminent domain.

(Added L.1986, c. 517, § 1.)

[1] Another § 1020–h is set out in Title 1–A ante.

Effective Date. Section effective Jan. 15, 1987, pursuant to L.1986, c. 517, § 11.

§ 1020–i.[1] Subsidiaries

1. The authority shall have the right to exercise and perform all or part of its powers and functions through one or more wholly owned subsidiaries by acquiring the voting shares thereof or by resolution of the board directing any of its trustees, officers or employees to organize a subsidiary corporation pursuant to the business corporation law, the not-for-profit corporation law or the transportation corporations law. Such resolution shall prescribe the purpose for which such subsidiary corporation is to be formed.

2. The authority may transfer to any subsidiary corporation any moneys, property (real, personal or mixed) or facilities in order to carry out the purposes of this title. Each such subsidiary corporation shall have all the privileges, immunities, tax exemptions and other exemptions of the authority to the extent the same are not inconsistent with the statute or statutes pursuant to which such subsidiary was incorporated provided, however, that in any event any such subsidiary corporation shall be entitled to exemptions from the state public service law and any regulation by, or the jurisdiction of, the public service commission, and the state environmental quality review act to the extent provided in subdivision two of section one thousand twenty-s of this title.

(Added L.1986, c. 517, § 1.)

[1] Another § 1020–i is set out in Title 1–A ante.

Effective Date. Section effective Jan. 15, 1987, pursuant to L.1986, c. 517, § 11.

§ 1020–j.[1] Notes of the authority

The authority shall have the power and is hereby authorized from time to time to issue its negotiable notes in conformity with applicable provisions of the uniform commercial code for any corporate purpose and to refund from time to time any notes by the issuance of new notes, whether the notes to be refunded have or have not matured. The authority may issue notes partly to refund notes or to discharge other obligations then outstanding and partly for any other corporate purpose of the authority. The notes may be authorized, sold, executed and delivered in the same manner as bonds. Any resolution or resolutions authorizing notes of the authority or any issue thereof may contain any provisions which the authority is authorized to include in any resolution or resolutions authorizing bonds of the authority or any issue thereof, and the authority may include in any notes any terms, covenants or conditions which it is authorized to include in any bonds.

(Added L.1986, c. 517, § 1.)

[1] Another § 1020–j is set out in Title 1-A ante.

Effective Date. Section effective Jan. 15, 1987, pursuant to L.1986, c. 517, § 11.

§ 1020–k.[1] Bonds of the authority

1. The authority shall have power and is hereby authorized from time to time to issue its negotiable bonds in conformity with applicable provisions of the uniform commercial code for any purpose authorized by this title, including without limitation (a) to acquire any real or personal property or facilities deemed necessary by the authority, (b) to pay interest on bonds or notes of the authority, (c) to establish reserves to secure such bonds and notes, (d) to establish or maintain such other funds or accounts for such purpose or purposes as the authority may deem necessary or desirable, and (e) to pay all other expenses of the authority incident to the issuance of such bonds or notes.

2. Except as may be otherwise expressly provided by the authority, the bonds and notes of every issue shall be general obligations of the authority payable out of any moneys or revenues of the authority, subject only to any agreements with the holders of particular bonds or notes, or any trustee therefor, pledging any particular moneys or revenues.

3. The authority shall have power from time to time, whenever it deems refunding expedient, to refund any bonds by the issuance of new bonds, whether the bonds to be refunded have or have not matured, and may issue bonds partly to refund bonds then outstanding and partly for any other corporate purpose of the authority. Refunding bonds may be exchanged for the bonds to be refunded, with such cash adjustments as may be agreed, or may be sold with the proceeds applied to the purchase, payment or provision for payment of the bonds to be refunded.

4. Bonds may be issued, payable in annual installments or as term bonds or both. Bonds shall be authorized by resolution of the board of the authority and shall bear such date or dates, mature at such time or times, not exceeding fifty years from their respective dates, bear interest at such

rate or rates, be in such denominations, be in such form, either coupon or registered, carry such registration privileges, be executed in such manner, be payable in lawful money of the United States of America or by check at such place or places, and be subject to such terms of redemption, as such resolution or resolutions may provide. In the event that term bonds are issued, the resolution authorizing the same may make such provisions for the establishment and maintenance of sinking funds for the payment thereof as the authority may deem necessary or appropriate. Bonds or notes may be sold at public or private sale at such price or prices as the authority shall determine but shall not be sold by the authority at private sale unless such sale and terms thereof have been approved in writing by the state comptroller. Pending preparation of definitive bonds or notes, the authority may issue bonds or notes in temporary form which shall be exchanged for bonds or notes in definitive form when available.

5. Any resolution or resolutions authorizing any bonds or any issue of bonds may (a) delegate to an officer or officers of the authority the power to approve the issuance of bonds from time to time and to fix the details of any such bonds or issues of bonds by an appropriate certificate of such authorized officer or officers and (b) contain provisions, which shall be a part of the contract with the holders of the bonds to be authorized as to: (i) pledging or creating a lien on all or any part of the moneys, revenues or properties of the authority to secure the payment of the bonds or of any particular issue of bonds or any portion of any issue of bonds, subject to such agreements with bondholders as may then exist;

(ii) the rates, fees and other charges to be charged, and the amounts to be raised in each year thereby, and the use and disposition of the revenues;

(iii) the setting aside of reserves or sinking funds, and the regulation and disposition thereof;

(iv) limitations on the right of the authority to restrict and regulate the use of any of its property;

(v) limitations on the purpose to which the proceeds of sale of any issue of bonds then or thereafter to be issued may be applied;

(vi) limitations on the issuance of additional bonds, the terms upon which additional bonds may be issued and secured, and the refunding of outstanding bonds;

(vii) the procedure, if any, by which the terms of any contract with bondholders may be amended, the amount or percentage of outstanding bonds the holders of which must consent thereto, and the manner in which such consent may be given;

(viii) defining the acts or omissions to act which shall constitute a default in the duties of the authority to holders of its obligations and providing the rights and remedies of such holders or of a trustee acting on their behalf in the event of a default; and

(ix) any other matters of like or different character, which in any way may affect the security and protection of the bonds and the rights of the holders thereof.

6. Notwithstanding any other provisions of this title, any such resolution or resolutions shall contain a covenant by the authority that it will at all times maintain rates, fees or charges sufficient to pay, and that any contracts entered into by the authority for the sale, transmission or distribution of electricity shall contain rates, fees or charges sufficient to pay, the costs of operation and maintenance of the facilities owned or operated by the authority, payments in lieu of taxes, renewals, replacements and capital additions, the principal of and interest on any obligations

issued pursuant to such resolution as the same severally become due and payable, and to establish or maintain any reserves or other funds or accounts required or established by or pursuant to the terms of such resolution or resolutions.

7. It is the intention of the legislature that any pledge of moneys, revenues or property or of a revenue producing contract or contracts made by the authority shall be valid and binding from the time when the pledge is made; that the moneys, revenues or proceeds so pledged and thereafter received by the authority shall immediately be subject to the lien of such pledge without any physical delivery thereof or further act; and that the lien of any such pledge shall be valid and binding as against all parties having claims of any kind in tort, contract or otherwise against the authority irrespective of whether such parties have notice thereof. Neither the resolution nor any other instrument by which a pledge or lien is created pursuant to this subdivision need be recorded in order to perfect such pledge or lien.

8. Neither the trustees of the authority nor any person executing the bonds or notes shall be liable personally on the bonds or notes or be subject to any personal liability or accountability by reason of the issuance thereof.

9. The authority shall have power out of any funds available therefor to purchase bonds or notes at such price or prices as it deems advisable. The authority may hold, pledge, cancel or resell such bonds, subject to agreements with bondholders.

10. All bonds, notes and other obligations issued by the authority under the provisions of this title are hereby declared to have all the qualities and incidents of negotiable instruments under the applicable laws of the state.

(Added L.1986, c. 517, § 1.)

[1] Another § 1020-k is set out in Title 1-A ante.

Effective Date. Section effective Jan. 15, 1987, pursuant to L.1986, c. 517, § 11.

§ 1020-*l*.[1] State and municipalities not liable on bonds or notes

The bonds, notes and other obligations of the authority shall not be a debt of the state or of any municipality, and neither the state nor any municipality shall be liable thereon. The authority shall not have the power to pledge the credit, the revenues or the taxing power of the state or of any municipality, and neither the credit, the revenues nor the taxing power of the state or of any municipality shall be, or shall be deemed to be, pledged to the payment of any bonds, notes or other obligations of the authority. Each evidence of indebtedness of the authority, including the bonds and notes of the authority, shall contain a clear and explicit statement of the provisions of this section.

(Added L.1986, c. 515, § 1.)

[1] Another § 1020-*l* is set out in Title 1-A ante.

Effective Date. Section effective Jan. 15, 1987, pursuant to L.1986, c. 517, § 11.

§ 1020-m.[1] Legal investments

Any bonds or notes issued by the authority are hereby made securities in which all public officers and bodies of this state and all municipalities, all insurance companies and associations and other persons carrying on an insurance business, all banks, bankers, trust companies, savings banks and savings associations, including savings and loan associations, building and loan associations, investment companies and other persons carrying on a banking business, all trusts, estates and guardianships and all other persons whatsoever, who are now or may hereafter be authorized to invest in bonds or other obligations of the state, may properly and legally invest funds, including capital in their control or belonging to them. The bonds and notes are also hereby made securities which may be deposited with and shall be received by all public officers and bodies of the state and all municipalities for any purpose for which the deposit of bonds or other obligations of the state is now or may hereafter be authorized.

(Added L.1986, c. 517, § 1.)

[1] Another § 1020–m is set out in Title 1–A ante.

Effective Date. Section effective Jan. 15, 1987, pursuant to L.1986, c. 517, § 11.

§ 1020–n.[1] Deposit and investment of moneys of the authority

1. All moneys of the authority from whatever source derived, except as otherwise authorized or provided in this title, shall be paid to the treasurer of the authority and shall be deposited forthwith in a bank or banks designated by the authority. The moneys in such accounts shall be withdrawn on the order of such person or persons as the authority may authorize. All deposits of such moneys shall be secured in accordance with section two thousand nine hundred twenty-five of this chapter. The state comptroller and his legally authorized representatives are authorized and empowered from time to time to examine the accounts and books of the authority, including its receipts, disbursements, contracts, leases, sinking funds, investments and any other records and papers relating to its financial standing; the authority shall not be required to pay a fee for any such examination.

2. The authority shall have power to contract with holders of any of its bonds or notes, or any trustee therefor, as to the custody, collection, securing, investment and payment of any moneys of the authority and of any moneys held in trust or otherwise for the payment of bonds or notes, and to carry out any such contract. Moneys held in trust or otherwise for the payment of bonds or notes or in any way to secure bonds or notes and deposits of such moneys shall be secured in accordance with section two thousand nine hundred twenty-five of this chapter, and all banks and trust companies in the state are authorized to give such security for such deposits.

3. Subject to agreements with noteholders and bondholders or any trustee therefor, the authority shall prescribe a uniform system of accounts in accordance with generally accepted accounting principles.

(Added L.1986, c. 517, § 1.)

[1] Another § 1020–n is set out in Title 1–A ante.

Effective Date. Section effective Jan. 15, 1987, pursuant to L.1986, c. 517, § 11.

§ 1020–o.[1] Agreement of the state

1. The state of New York does hereby pledge to and agree with the holders of any obligations issued under this title and the parties to any contracts with the authority hereunder that the state will not limit or alter the rights hereby vested in the authority until such obligations together with the interest thereon are fully met and discharged and/or such contracts are fully performed on the part of the authority, provided that nothing herein contained shall preclude such limitation or alteration if and when adequate provision shall be made by law for the protection of the holders of such obligations of the authority, or those entering into such contracts with the authority. The authority as agent for the state is authorized to include this pledge and agreement by the state in all agreements with the holders of such obligations and in all such contracts.

2. Nothing in this title shall be construed as diminishing or enlarging any valid existing rights under any license heretofore issued pursuant to the provisions of the federal power act.

(Added L.1986, c. 517, § 1.)

[1] Another § 1020–o is set out in Title 1-A ante.

Effective Date. Section effective Jan. 15, 1987, pursuant to L.1986, c. 517, § 11.

§ 1020–p.[1] Exemption from taxation

1. It is hereby found and declared that the operation of the authority is primarily for the benefit of the people of the state of New York, for the improvement of their health, welfare and prosperity, and is a public purpose, and the authority shall be regarded as performing an essential governmental function in carrying out the provisions of this title.

2. The authority shall be required to pay no taxes nor assessments upon any of the property acquired or controlled by it or upon its activities in the operation and maintenance thereof or upon income derived therefrom, provided that nothing herein shall prevent the authority from entering into agreements to make payments in lieu of taxes with the governing bodies of municipalities, as provided for in section one thousand twenty-q of this title.

3. The securities and other obligations issued by the authority, their transfer and the income therefrom shall, at all times, be free from taxation by the state or any municipality, except for estate and gift taxes.

(Added L.1986, c. 517, § 1.)

[1] Another § 1020–p is set out in Title 1-A ante.

Effective Date. Section effective Jan. 15, 1987, pursuant to L.1986, c. 517, § 11.

§ 1020–q.[1] Payments in lieu of taxes

1. Each year after property theretofore owned by LILCO is acquired by the authority by any means authorized by this title and, as a consequence, is removed from the tax rolls, the authority shall make payments in lieu of taxes to municipalities and school districts equal to the taxes and assessments which would have been received from year to year by each such jurisdiction if such acquisition had not occurred, except for such taxing jurisdictions which tax the Shoreham plant, in which case the in lieu of tax

payments shall in the first year after the acquisition be equal to one hundred percent of the taxes and assessments which would have been received by such taxing jurisdictions. In each succeeding year such in lieu of tax payments shall be decreased by ten percent until such time as such payments equal taxes and assessments which would have been levied on such plant in a nonoperative state.

2. The authority shall also make payments in lieu of taxes for those taxes which would otherwise be imposed upon LILCO, if LILCO were to continue in operation, pursuant to sections one hundred eighty-six, one hundred eighty-six-a, one hundred eighty-six-b and one hundred eighty-six-c of the tax law, paragraph (b) of subdivision four of section one hundred seventy-four of the navigation law, and any taxes imposed by a city pursuant to the authorization granted by section twenty-b of the general city law.

3. No municipality or governmental subdivision, including a school district or special district, shall be liable to the authority or any other entity for a refund of property taxes originally assessed against the Shoreham plant. Any judicial determination that the Shoreham plant assessment was excessive, unequal or unlawful for any of the years from nineteen hundred seventy-six to the effective date of this title shall not result in a refund by any taxing jurisdiction of taxes previously paid by LILCO pursuant to such Shoreham plant assessment. The authority shall discontinue and abandon all proceedings, brought by its predecessor in interest, which seek the repayment of all or part of the taxes assessed against the Shoreham plant.

(Added L.1986, c. 517, § 1.)

[1] Another § 1020–q is set out in Title 1–A ante.

Effective Date. Section effective Jan. 15, 1987, pursuant to L.1986, c. 517, § 11.

§ 1020–r.[1] Repayment of state appropriations

All appropriations made by the state to the authority shall be treated as advances by the state to the authority, and shall be repaid to it without interest either out of the proceeds of bonds issued by the authority pursuant to the provisions of this title, or by the delivery of non-interest bearing bonds of the authority to the state for all or any part of such advances, or out of excess revenues of the authority, at such times and on such conditions as the state and the authority mutually may agree upon.

(Added L.1986, c. 517, § 1.)

[1] Another § 1020–r is set out in Title 1–A ante.

Effective Date. Section effective Jan. 15, 1987, pursuant to L.1986, c. 517, § 11.

§ 1020–s.[1] Public service law generally not applicable to authority; inconsistent provisions in certain other acts superseded

1. The rates, services and practices relating to the electricity generated by facilities owned or operated by the authority shall not be subject to the provisions of the public service law or to regulation by, or the jurisdiction of, the public service commission, except to the extent (a) article seven of the public service law applies to the siting and operation of a major utility transmission facility as defined therein, (b) article eight of such law applies

to the siting of a generating facility as defined therein, and (c) section eighteen-a of such law provides for assessment for certain costs, property or operations.

2. The issuance by the authority of its obligations to acquire the securities or assets of LILCO shall be deemed not to be "state action" within the meaning of the state environmental quality review act, and such act shall not be applicable in any respect to such acquisition or any action of the authority to effect such acquisition.

(Added L.1986, c. 517, § 1.)

[1] Another § 1020–s is set out in Title 1-A ante.

Effective Date. Section effective Jan. 15, 1987, pursuant to L.1986, c. 517, § 11.

§ 1020–t.[1] Authority not to construct or operate a nuclear powered facility in the service area

In no event shall the authority construct or operate a nuclear powered facility in the service area.

(Added L.1986, c. 517, § 1.)

[1] Another § 1020–t is set out in Title 1-A ante.

Effective Date. Section effective Jan. 15, 1987, pursuant to L.1986, c. 517, § 11.

§ 1020–u.[1] Employees of the authority not subject to the public employees' fair employment act

All employees of the authority shall be exempt from the provisions of the public employees' fair employment act as set forth in article fourteen of the civil service law.

(Added L.1986, c. 517, § 1.)

[1] Another § 1020–u is set out in Title 1-A ante.

Effective Date. Section effective Jan. 15, 1987, pursuant to L.1986, c. 517, § 11.

§ 1020–v.[1] Equal employment opportunity and minority and women owned business enterprise programs

1. All contracts entered into by the authority pursuant to this title of whatever nature and all documents soliciting bids or proposals therefor shall contain or make reference to the following provisions:

(a) The contractor will not discriminate against employees or applicants for employment because of race, creed, color, national origin, sex, age, disability, or marital status, and will undertake or continue existing programs of affirmative action to ensure that minority group persons and women are afforded equal opportunity without discrimination. Such programs shall include, but not be limited to, recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, layoff, termination, rates of pay or other forms of compensation, and selection for training and retraining, including apprenticeship and on-the-job training.

(b) At the request of the authority, the contractor shall request each employment agency, labor union, or authorized representative of workers with which it has a collective bargaining or other agreement or understanding and which is involved in the performance of the contract with the authority to furnish a written statement that such employment agency, labor union or representative shall not discriminate because of race, creed, color, national origin, sex, age, disability or marital status and that such union or representative will cooperate in the implementation of the contractor's obligations hereunder.

(c) The contractor shall state, in all solicitations or advertisements for employees placed by or on behalf of the contractor in the performance of the contract with the authority that all qualified applicants will be afforded equal employment opportunity without discrimination because of race, creed, color, national origin, sex, age, disability or marital status.

(d) The contractor will include the provisions of paragraphs (a) through (c) of this subdivision in every subcontract or purchase order in such a manner that such provisions will be binding upon each subcontractor or vendor as to its work in connection with the contract with the authority.

2. The authority shall establish measures, procedures and guidelines to ensure that contractors and subcontractors undertake meaningful programs to employ and promote qualified minority group members and women. Such procedures may require after notice in a bid solicitation, the submission of a minority and women workforce utilization program prior to the award of any contract, or at any time thereafter, and may require the submission of compliance reports relating to the operation and implementation of any workforce utilization program adopted hereunder. The authority may take appropriate action, including the impositions of sanctions for non-compliance to effectuate the provisions of this section and shall be responsible for monitoring compliance with this title.

3. In the performance of projects pursuant to this title, minority and women-owned business enterprises shall be given the opportunity for meaningful participation. The authority shall establish quantifiable standards and measures and procedures to secure meaningful participation and identify those contracts and items of work for which minority and women-owned business enterprises may best bid to actively and affirmatively promote and assist their participation in projects, so as to facilitate the award of a fair share of contracts to such enterprises; provided, however, that nothing in this title shall be construed to limit the ability of the authority to assure that qualifed minority and women-owned business enterprises may participate in the program. For purposes hereof, minority business enterprise shall mean any business enterprise which is at least fifty-one per centum owned by, or in the case of a publicly owned business, at least fifty-one per centum of the stock or other voting interest is owned by citizens or permanent resident aliens who are Black, Hispanic, Asian, American Indian, Pacific islander, or Alaskan native, and such ownership interest is real, substantial and continuing and has the authority to independently control the day to day business decisions of the entity for at least one year; and women-owned business enterprise shall mean any business enterprise which is at least fifty-one per centum owned by, or in the case of a publicly owned business, at least fifty-one per centum of the stock to other voting interests of which is owned by citizens or permanent resident aliens who are women, and such ownership interest is real, substantial and continuing and has the authority to independently control the day to day business decisions of the entity for at least one year.

The provisions of this subdivision shall not be construed to limit the ability of any minority business enterprise to bid on any contract.

4. In order to implement the requirements and objectives of this section, the authority shall establish procedures to monitor contractors compliance with provisions hereof, provide assistance in obtaining competing qualified minority and women-owned business enterprises to perform contracts proposed to be awarded, impose contractual sanctions for non-compliance, and take other appropriate measures to improve the access of minority and women-owned business enterprises to these contracts.

(Added L.1986, c. 517, § 1.)

[1] Another § 1020–v is set out in Title 1-A ante.

Effective Date. Section effective Jan. 15, 1987, pursuant to L.1986, c. 517, § 11.

§ 1020–w.[1] Audit and annual reports

The accounts of the authority shall be subject to the supervision of the state comptroller and an annual audit shall be performed by an independent certified accountant selected by the state division of the budget. The authority shall submit annually to the governor, the state comptroller, the temporary president of the senate, the speaker of the assembly and the county executives and governing bodies of the counties of Suffolk and Nassau, a detailed report pursuant to the provisions of section two thousand eight hundred of title one of article nine of this chapter, which report shall be verified by the chairman of the authority. The authority shall comply with the provisions of sections two thousand eight hundred one, two thousand eight hundred two and two thousand eight hundred three of title one of article nine of this chapter.

(Added L.1986, c. 517, § 1.)

[1] Another § 1020–w is set out in Title 1-A ante.

Effective Date. Section effective Jan. 15, 1987, pursuant to L.1986, c. 517, § 11.

§ 1020–x. Authority subject to open meetings law

The authority shall be subject to the provisions of article seven of the public officers law relating to the open meetings law.

(Added L.1986, c. 517, § 1.)

Effective Date. Section effective Jan. 15, 1987, pursuant to L.1986, c. 517, § 11.

§ 1020–y. Court proceedings; preferences; venue

1. Any action, suit or proceeding to which the authority may be a party in which any question arises as to the validity of this title or the valuation of stock or assets acquired by the authority by the exercise of the power of eminent domain shall be preferred over all other civil causes in all courts of the state, except election matters, and shall be heard and determined in preference to all other civil business pending therein, except election matters, irrespective of position on the calendar. The same preference shall be granted upon application of counsel to the authority in any action or proceeding questioning the validity of this title or the valuation of stock or assets acquired by the authority by the exercise of the power of eminent

domain in which such counsel may be allowed to intervene. The venue of any action or proceeding questioning the validity of this title shall be laid in the county in which the principal office of the authority is located.

2. In the event any party shall appeal an award of compensation for the taking by the authority of stock or assets, such party shall post a bond in such amount, if any, as the supreme court shall deem appropriate to adequately protect the interests of the other party under all the circumstances.

(Added L.1986, c. 517, § 1.)

Effective Date. Section effective Jan. 15, 1987, pursuant to L.1986, c. 517, § 11.

§ 1020-z. Corporate existence

The authority and its corporate existence shall continue until terminated by law, provided, however, that no such law shall take effect so long as the authority shall have bonds, notes or other obligations outstanding, unless adequate provision has been made for the payment thereof.

(Added L.1986, c. 517, § 1.)

Effective Date. Section effective Jan. 15, 1987, pursuant to L.1986, c. 517, § 11.

§ 1020-aa. Conflicts of interest

1. If any member, officer or employee of the authority shall have an interest, either direct or indirect, in any contract to which the authority is, or is to be, a party, such interest shall be disclosed to the authority in writing and shall be set forth in the minutes of the authority. The member, officer or employee having such interest shall not participate in any action by the authority with respect to such contract.

2. No member, officer or employee shall be deemed to have such an interest solely by reason of the ownership of two percent or less of the securities of a corporation which is, or is to be, a party to a contract with the authority, including without limitation the holding company of any banking institution in which the funds of the authority are, or are to be, deposited or which is, or is to be, acting as trustee or paying agent under any bond or note resolution, trust indenture or similar instrument to which the authority is a party.

3. Nothing in this section shall be deemed or construed to limit the right of any member, officer or employee of the authority to acquire an interest in bonds or notes of the authority.

(Added L.1986, c. 517, § 1.)

Effective Date. Section effective Jan. 15, 1987, pursuant to L.1986, c. 517, § 11.

§ 1020-bb. Authority subject to certain provisions contained in the state finance law, the public service law, the social services law and the general municipal law

All contracts of the authority shall be subject to the provisions of the state finance law relating to contracts made by the state. The authority shall also establish rules and regulations with respect to providing to its residential gas, electric and steam utility customers those rights and protections provided in article two and sections one hundred seventeen and one hundred eighteen of the public service law and section one hundred thirty-one-s of the social services law. The authority shall let contracts for construction or purchase of supplies, materials, or equipment pursuant to section one hundred three and paragraph (e) of subdivision four of section one hundred twenty-w of the general municipal law.

(Added L.1986, c. 517, § 1.)

Effective Date. Section effective Jan. 15, 1987, pursuant to L.1986, c. 517, § 11.

§ 1020-cc. Authority not to seek nor any subsidiary of the authority, to apply for or accept preference hydroelectricity

The authority nor any subsidiary of the authority, shall not seek, apply for, nor accept hydroelectricity produced by the power authority of the state of New York and marketed subject to the federal preference clause contained in the Niagara Redevelopment Act at 16 USC Section 836(b)(1)[1] and distributed by the Power Authority of the State of New York subject to section ten hundred five of this chapter. Nothing herein shall be construed to prohibit the authority from entering into agreements with public bodies within its service territory for the wheeling and/or distribution of such hydroelectricity.

(Added L.1986, c. 517, § 1.)

[1] 16 U.S.C.A. § 836(b)(1).

Effective Date. Section effective Jan. 15, 1987, pursuant to L.1986, c. 517, § 11.

§ 1020-dd. Nine Mile Point II; disposition of interest

The authority shall make every effort to convey its interest in the Nine Mile Point II nuclear generating facility through the sale of its interest in such facility to the power authority of the state of New York or to one or more of the co-tenants of such plant, provided, however, that in any acquisition of such interest by the power authority of the state of New York or by one or more of the co-tenants, the authority shall agree to remain responsible for the purchase of such share of the power generated by such facility as it is required to purchase under agreements entered into by LILCO and obligating the authority.

(Added L.1986, c. 517, § 1.)

Effective Date. Section effective Jan. 15, 1987, pursuant to L.1986, c. 517, § 11.

§ 1020-ee. Liberal interpretation

This title, being necessary for the prosperity of the state and its inhabitants, shall be liberally construed to effect the purposes hereof.

(Added L.1986, c. 517, § 1.)

Effective Date. Section effective Jan. 15, 1987, pursuant to L.1986, c. 517, § 11.

§ 1020-ff. Inconsistent provisions of other laws superseded

Insofar as the provisions of this title are inconsistent with the provisions of any other law or any part thereof, the provisions of this title shall be controlling.

(Added L.1986, c. 517, § 1.)

Effective Date. Section effective Jan. 15, 1987, pursuant to L.1986, c. 517, § 11.

§ 1020-gg. Severability

The provisions of this title are severable, and if any part or provision hereof, or the application thereof to any person or circumstance, shall be adjudged by any court of competent jurisdiction to be invalid or unenforceable, such judgment shall not affect, impair or invalidate the remainder of this title or the application of such provision to any other person or circumstance, but shall be confined in its operation to the provision, person or circumstance directly involved in the controversy in which such judgment shall have been rendered.

(Added L.1986, c. 517, § 1.)

Effective Date. Section effective Jan. 15, 1987, pursuant to L.1986, c. 517, § 11.

STATE OF NEW YORK

21035

Cal. No. 1801

IN SENATE

June 27, 1986

Assembly Bill No. 11666 introduced by COMMITTEE ON RULES -- (at reques of M. of A. Bianchi, Harenberg, Yevoli, Newburger, Patton, Lipschutz Kremer) -- (at request of the Governor) -- read twice and referred t the Committee on Rules, substituted for Senate Bill No. 1254-A b Sens. LACK, LAVALLE, DUNNE, GOODHUE, JOHNSON, N. LEVY, MARINO, SKELOS TRUNZO, TULLY -- ordered to a third reading, amended and ordered re printed, retaining its place in the order of third reading

AN ACT to amend the public service law, in relation to the denial o certain utilities of recovery for direct and indirect costs associate with nuclear power plants not used and useful in the public service

The People of the State of New York, represented in Senate and Assem-bly, do enact as follows:

Section 1. Legislative findings and declaration. The legislature hereby finds and declares that, pursuant to traditional regulatory principles, utility customers should not be required to bear the cost of a plant which fails to operate; that investment in such a plant would be of no benefit to the utility's customers, for the plant would not constitute property used and useful in the provision of the utility's service; that the financial consequences of a utility's expenditure of vast sums on a nuclear power plant that fails to operate is of particular public concern because of the large amounts involved; that it would pose an unreasonable and discriminatory detriment to the customers of such a utility and to economic activity in such utility's service territory to permit any of the costs of such plant to be borne by such customers or to burden such economic activity; that this financial detriment to such customers is intensified when the costs of such plant must be shared among a smaller number of ratepayers; that it is just and and reasonable in these circumstances that the consequences of the business judgment to expend vast sums on a nuclear power plant that fails to operate fall on the company that made that judgment and not on its customers, particularly where such customers have no legal opportunity to obtain utility

EXPLANATION--Matter in *italics* (underscored) is new; matter in brackets
[ ] is old law to be omitted.

LBD13896-02-6

services elsewhere; and that it is in the public interest to protect utility customers, to the greatest extent permitted by the constitutions of the United States and the state of New York, from having to bear, directly or indirectly, any of the costs associated with such a plant.

The legislature further finds and declares that special circumstances surrounding the construction by a single electric or gas and electric corporation of a nuclear power plant which may fail to operate on Long Island require a specific statutory prescription of the application of the used and useful principle in that instance, that these unique circumstances include the extraordinary size of the investment in such plant, the prolonged, continuing and fundamental inability of the utility to obtain a full power operating license for such plant, and the concentration of economic burden on the ratepaying residents and businesses on Long Island if such plant fails to commence or continue commercial operation; and that such special circumstances are not now present and are not anticipated to occur in connection with other nuclear power plants in the state.

§ 2. Section sixty-six of the public service law is amended by adding a new subdivision twenty-four to read as follows:

24. (a) If a nuclear power plant which is not commercially used and useful in the actual generation of electricity on the effective date of this subdivision and which is owned by a single utility on or after the effective date of this subdivision fails to commence or continue commercial operation after the effective date of this subdivision, the commission shall thereafter remove and exclude from the utility corporation's revenue requirement all amounts, costs, charges, adjustments, or extraordinary cost of capital allowances theretofore made, granted or provided which are attributable, directly or indirectly, to such nuclear power plant or to such plant's failure to commence commercial operation.

(b) The commission shall not thereafter, unless and until such plant commences or recommences commercial operation, include in such utility's revenue requirement any amounts, costs, charges, adjustments or extraordinary cost of capital allowances attributable, directly or indirectly, to such plant or to such plant's failure to commence commerical operation.

(c) Nothing in this subdivision shall be deemed to require a refund of the charges paid by or billed to a customer of such utility prior to a failure to commence or continue commercial operation of such plant.

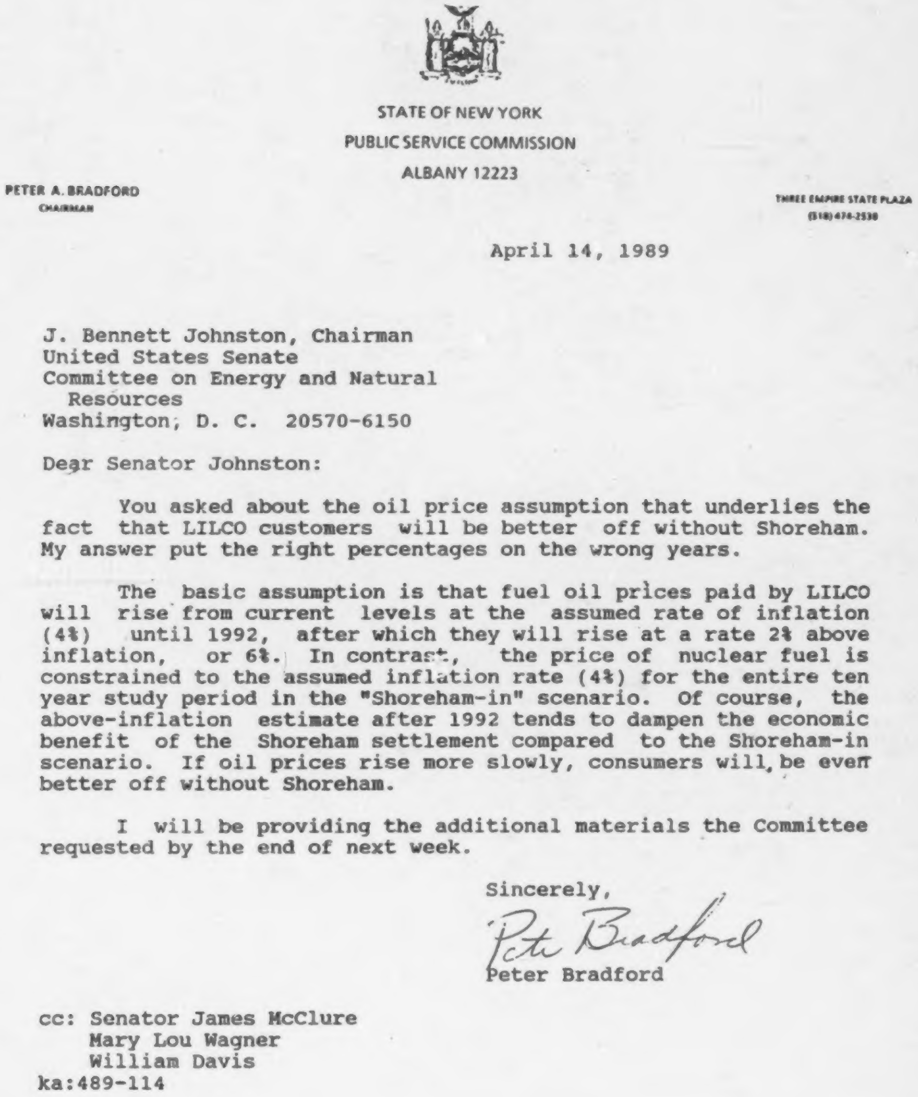
(d) For the purposes of this subdivision, the failure to commence or continue commercial operation shall mean the abandonment of such plant after the effective date of this subdivision; the denial, including any denial pursuant to or as a result of any administrative or judicial review, of a commercial operating license or other regulatory approval necessary for the plant to become commercially used and useful in the actual generation of electricity; the failure of the plant to become commercially used and useful in the actual generation of electricity before December first, nineteen hundred eighty-eight; or the occurrence of any event or the existence of any circumstances (other than customary inspection and maintenance and related repairs or refueling requirements) after the plant becomes commercially used and useful in the actual generation of electricity which renders the plant not commercially used and useful in the actual generation of electricity.

§ 3. The provisions of this act shall be severable and if any phrase, clause, sentence or provision of this act, or the applicability thereof to any person or circumstances shall be held invalid, the remainder of this act and the application thereof shall not be affected thereby.

§ 4. This act shall take effect immediately.

APPENDIX IV

Additional Material Submitted by the State of New York



STATE OF NEW YORK
PUBLIC SERVICE COMMISSION
ALBANY 12223

PETER A. BRADFORD
CHAIRMAN

THREE EMPIRE STATE PLAZA
(518) 474-2530

April 14, 1989

J. Bennett Johnston, Chairman
United States Senate
Committee on Energy and Natural
  Resources
Washington, D. C. 20570-6150

Dear Senator Johnston:

You asked about the oil price assumption that underlies the fact that LILCO customers will be better off without Shoreham. My answer put the right percentages on the wrong years.

The basic assumption is that fuel oil prices paid by LILCO will rise from current levels at the assumed rate of inflation (4%) until 1992, after which they will rise at a rate 2% above inflation, or 6%. In contrast, the price of nuclear fuel is constrained to the assumed inflation rate (4%) for the entire ten year study period in the "Shoreham-in" scenario. Of course, the above-inflation estimate after 1992 tends to dampen the economic benefit of the Shoreham settlement compared to the Shoreham-in scenario. If oil prices rise more slowly, consumers will be even better off without Shoreham.

I will be providing the additional materials the Committee requested by the end of next week.

Sincerely,

Pete Bradford

Peter Bradford

cc: Senator James McClure
    Mary Lou Wagner
    William Davis
ka:489-114

STATE OF NEW YORK DEPARTMENT OF PUBLIC SERVICE
THREE EMPIRE STATE PLAZA, ALBANY, NY 12223

PUBLIC SERVICE COMMISSION

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WILLIAM J. COWAN
General Counsel

JOHN J. KELLIHER
Secretary

April 18, 1989

Senator J. Bennett Johnston
U.S. Senate Committee on
Energy & National Resources
Washington, D.C. 20510-6150

Dear Senator Johnston:

In response to the request of the Committee at its hearing on April 13, 1989, we are furnishing the following:

1) a study comparing the economics of operating Shoreham against implementation of the Settlement calling for its decommissioning, performed by advisory staff to the Public Service Commission.

2) two comparative rate analyses of Shoreham's operation against the Settlement calling for its decommissioning, performed by Lazard, Freres & Co. for the Long Island Power Authority on June 21, 1988 and April 6, 1989.

3) the Department of Public Service's Staff brief in the 1988 phase of the Settlement which contains a good summary of the economic issues and available alternatives. It also contains an explanation of the Financial Resource Asset (p. 22).

4) The PSC's Opinion and Order approving the Settlement agreement and rate moderation plan; and

5) a summary of our analysis of LILCO's Summer 1989 capacity situation.

Answers to the Committee's other questions that were forwarded by separate letter will be supplied shortly.

Very truly yours,

William J. Cowan
WILLIAM J. COWAN
General Counsel

Attachment

Comparative Rate Analysis

LIPA Shoreham Acquisition Scenario

vs.

LILCO Shoreham Operation Scenario

LAZARD FRERES & CO.
Resource Management International, Incorporated
Skadden, Arps, Slate, Meagher & Flom
Touche Ross & Co.

April 6, 1989

SECTION II

METHODOLOGY AND ASSUMPTIONS

This section describes the principal methodology and assumptions utilized by the Study Team in reaching the conclusion that ratepayer savings would be achieved under the New Settlement Agreement and the rate plan adopted by the PSC on April 5, 1989. The Study Team believes the methodology and assumptions are reasonable for the purpose of this Report; however, actual conditions may vary from the assumptions used herein, and actual savings and other results may correspondingly vary from those projected.

Methodology

The Report compares rate levels and operating revenue requirements over an 11-year period (1989-1999) under the terms of the New Settlement Agreement and the rate plan adopted by the PSC on April 5, 1989, and the rate levels and operating revenue requirements if LILCO were to operate Shoreham. The 11-year period is hereinafter referred to as the "Study Period." The comparison, under assumed financial and operating conditions, is hereinafter referred to as the "Base Case."

Projections of non-fuel operating expenses for LILCO, such as property taxes (or payments in lieu thereof), operation and maintenance ("O&M"), depreciation, income taxes, and profits were derived using a financial model which simulates the PSC ratemaking process. The financial model incorporates projections of load growth, inflation, refinancing and future capital additions. Fuel and purchased power related costs were derived based upon the production costing results contained in the Strategic Financial Planning Model prepared by the staff of the Department of Public Service ("DPS"). This model was used by the DPS in its analyses of both the New Settlement Agreement as well as the 1988 Settlement Agreement.

The total present value savings under the New Settlement Agreement and the PSC adopted rate plan were calculated both as a dollar amount and as a percentage of the total present value revenue requirements necessary to support LILCO's operation of Shoreham. Unless otherwise indicated herein, percentage savings are expressed in terms of total LILCO revenue requirements assuming operation of Shoreham with revenue requirements of LILCO's gas system kept neutral. All measurements of savings are expressed in present value terms as of January 1, 1989. The discount rate used for present value analysis was nine percent.

LIPA Shoreham Acquisition Scenario

The LIPA Shoreham Acquisition Scenario was reviewed on the basis of the New Settlement Agreement and the rate plan adopted by the PSC, including the assumptions and conditions adopted by the PSC in connection therewith. (The PSC adopted the Rate Moderation Agreement and the assumptions and conditions as set forth therein as proposed by DPS and LILCO in Cases 29484 and 88-E-084.) The following is a list of the key assumptions adopted by the PSC.

1. Electric rates will be increased on a system average basis, including fuel, by 5.4 percent on February 18, 1989, 5.0 percent effective December 1, 1989, and 5.0 percent effective December 1, 1990. The rate increases for 1991 through 1999 will be based upon the conditions contained in the Rate Moderation Agreement.

2. Revenue requirements calculated for the period 1990 through 1999 will be reduced by adjustments totalling $390 million to reflect the settlement of the RICO action in Federal District Court.

3. LILCO will transfer Shoreham to LIPA on June 1, 1989. LILCO pays and will recover actual decommissioning costs (which are capitalized and recovered over the balance of a 40-year period commencing in 1989 and ending in 2029). The decommissioning costs are estimated at $388 million (1989 Dollars).

4. LILCO makes payments for the existing Shoreham property, including both taxes and payments in lieu of taxes, over a ten year period on a straight line declining

basis. These payments are to be capitalized and recovered over a 40-year period.

5. LILCO will write off Shoreham for income tax purposes in 1989. Taxable income available for the utilization of the immediate write-off, for federal income tax purposes, of the Shoreham tax basis, will be divided equally between ratepayers and shareholders until the shareholder's total deferred tax benefits are fully realized.

6. LILCO writes off net prudency disallowances for Nine Mile Point 2 and Jamesport of $198 million and $23 million, respectively, in the first quarter of 1988. LILCO writes off all of Bokum Resources in 1989.

7. A "Financial Resource Asset" (FRA) is established, which is equivalent to the present value of the future net after tax cash flows and is composed of two components -- the Base Financial Component (BFC) which is assumed to be approximately $4.0 billion and the Rate Moderation Component (RMC) which is the mechanism used for accruing revenues that are deferred as a part of the rate moderation mechanism;

8. LILCO will refinance $455 million in high cost G&R Bonds by August 1, 1990 and $380 million in preferred stock by 1993.

9. Sales forecast:

Year	MW	GWH
1989	3745	15610
1990	3795	15680
1991	3830	15935
1992	3890	16235
1993	3940	16545
1994	3995	16860
1995	4045	17135
1996	4095	17425
1997	4150	17715
1998	4205	18005
1999	4260	18300

10. Fuel and purchase power related expenses are consistent with the financial models prepared by the DPS in connection with the New Settlement Agreement.

11. Operation and maintenance and property tax expenses escalate at the rates assumed in the financial models prepared by DPS.

12. Refinancing of debt and new debt issues are assumed to be accomplished to achieve a target capitalization structure of approximately 60 percent debt, 32.5 percent common stock, and 7.5 percent preferred stock. Debt is sold without amortization installments prior to its final maturity.

13. A minimum of $100 million in tax-exempt industrial development bonds (IDB's) will be issued each year for a minimum of five years.

14. LILCO's incremental cost of common equity will be 14.2 percent, 13.0 percent, and 12.75 percent, respectively, in the period 1989-91, dropping to 11.75 percent for the remainder of the Study Period. The incremental cost of new debt debentures will be 11.5 percent declining to 10.5 percent by July 1990 at which time it is assumed that LILCO will obtain an investment grade rating. The incremental cost of preferred equity is assumed to be 10.75 percent.

15. LILCO will pay all arrearages on preferred dividends in the third quarter of 1989 and maintain current preferred dividends throughout the Study Period. LILCO will establish annualized common stock dividends of $1.00 per share in 1989, $1.50 per share in 1990, and $2.00 per share in 1991. LILCO is assumed to pay federal income taxes on its taxable income (net of investment tax credits associated with Nine Mile Point 2) at a 34 percent marginal rate.

16. The following resource supply assumptions have been incorporated into the analysis:

    - 240 MW of combustion turbines in 1989
    - Mid-Sound Cable in 1992
    - Life extensions of all generating resources scheduled for retirement
    - Combined cycle units of 300 MW in 1997 and 1999
    - Independent power production of 350 MW by 1997

LILCO Shoreham Operation Scenario

The LILCO Shoreham Operation Scenario contains the same assumptions with respect to load forecasts, implementation of DSM programs, fuel prices, availability of the Mid-Sound Project and Nine Mile Point 2, financial assumptions and other general study conditions, as were used in the LIPA Shoreham Acquisition Scenario. The following are key assumptions associated with the LILCO Shoreham Operation Scenario which differentiate it from the assumptions used in the LIPA Shoreham Acquisition Scenario:

1. LILCO will refinance $455 million in high cost G&R Bonds by December 1, 1990. No tax-exempt IDB's will be issued during the Study Period.

2. A rate moderation plan will be implemented generally in accordance with the PSC's Order in PSC Case 28252.

3. LILCO operates Shoreham successfully beginning July 1, 1989. The average capacity factor achieved by Shoreham throughout the Study Period is approximately 60 percent.

4. Additional capital expenditures for Shoreham will be necessary to meet Nuclear Regulatory Commission ("NRC") requirements as well as to ensure reliable service. Such capital expenditures have been estimated at approximately $50 million per annum in 1989 and escalating thereafter

based on previous LILCO rate filings before the PSC.

5. No additional baseload resources will be placed into service during the Study Period.

6. Full property taxes on Shoreham and other utility plant are paid throughout the Study Period.

7. Fuel and purchase power related expenses are consistent with the financial models prepared by the DPS in connection with the 1988 Settlement Agreement.

8. Decommissioning Shoreham from the 100 percent power level is assumed in the year 2029 at a cost of approximately $300 million in 1989 dollars, including personnel and other operating costs. Annual contributions to a Shoreham nuclear decommissioning account are made to fund this future liability.

SECTION III

RATE COMPARISON

The Base Case compares the LILCO system revenue requirements based on its operation of Shoreham to the revenue requirements of the rate plan adopted by the PSC in connection with the New Settlement Agreement. In the Base Case, total savings resulting from the implementation of the PSC adopted rate plan are projected to be approximately 5.2 percent of the corresponding LILCO Shoreham Operation Scenario electric system revenue requirements or approximately $649 million on a present value basis. Projections of revenue requirements were made for both the gas system and the electric system. Adjustments were made to keep gas system revenue requirements neutral; as a result, the percentage savings should be interpreted as applicable to the average rates of only the electric customers of LILCO.

Table 1 below shows the projected electric revenue requirements for the LIPA Shoreham Acquisition Scenario (based upon the New Settlement Agreement and the PSC adopted rate plan) compared with the LILCO Shoreham Operation Scenario. The difference in results represents the rate savings resulting from the LIPA Shoreham Acquisition Scenario.

Table 1
Revenue Requirement Comparison*
(Dollars in Millions)
(1989-1999)

	LILCO Shoreham Operation	LIPA Shoreham Acquisition	Present Value Savings	
			Savings	Percent
Operations & Maintenance	$ 5,206	$ 5,338	$(133)	(1.1)%
Taxes Other than FIT	2,041	1,623	418	3.4
Federal Income Tax	721	517	204	1.6
Capital	4,594	4,440	155	1.3
Gas Savings	--	(5)	5	0.0
Total Revenue Requirement	$12,562	$11,913	$ 649	5.2%

---

* Rates have been moderated over the Study Period to provide for level increases.

The analysis indicates that LILCO's average rates under the LIPA Shoreham Acquisition Scenario are projected to increase during the Study Period by approximately 4.8 percent per annum. Correspondingly, LILCO's rates assuming Shoreham operation are projected to increase by approximately 6.0 percent per annum during the Study Period.

The Study Team believes the assumptions used herein are reasonable for the purpose of this Report. However, actual conditions may vary from the assumptions used herein and actual savings and rates will correspondingly vary from those projected.

Revised April 13, 1989

Table 1

Revenue Requirement Comparison*
(Dollars in Millions)
(1989-1999)

	LILCO Shoreham Operation	LIPA Shoreham Acquisition	Present Value Savings	
			Savings	Percent
Operations and Maintenance	$7,348	$7,536	$(187)	(1.1)%
Taxes Other than FIT	2,881	2,291	590	3.4
Federal Income Tax	1,018	730	288	1.6
Capital	6,485	6,267	218	1.3
Gas Savings	---	(7)	7	0.0
Total Revenue Requirement	$17,732	$16,816	$917	5.2%

---

* Rates have been moderated over the Study Period to provide for level increases.

Comparative Rate Analysis

Settlement Scenario vs. LILCO-Shoreham In Scenario

LAZARD FRERES & CO.

Resource Management International, Incorporated

Skadden, Arps, Slate, Meagher & Flom

Willkie Farr & Gallagher

Touche Ross & Co.

June 21, 1988

SECTION I

BACKGROUND

The Long Island Power Authority ("LIPA") was created as a corporate municipal instrumentality of the State of New York by the enactment of the LIPA Act and came into existence on January 15, 1987. Pursuant to the LIPA Act, LIPA is a body corporate and politic and a political subdivision of the State of New York, exercising essential governmental and public powers. LIPA was established for the purpose, among others, of acquiring some portion of the assets of the Long Island Lighting Company ("LILCO") in furtherance of LIPA's objective of closing and decommissioning the Shoreham Nuclear Generating Station ("Shoreham"), in accordance with and subject to the LIPA Act.

On May 27, 1988, New York State (the "State") and LILCO announced they had reached an "agreement in principle" to abandon Shoreham and sell it for one dollar to LIPA. As part of the agreement (the "Settlement"), LILCO would be granted, among other things, a pattern of rate increases by the PSC, tax-exempt IDB "cap" authorization from the State, and assistance from the New York Power Authority ("NYPA") to implement needed future power supply facilities. The terms and conditions of the Settlement are contained in a draft document entitled the Settlement Agreement LILCO Issues as well as certain other draft documents and pro-formas provided by the New York State Public Service Commission (the "PSC"), NYPA, the State and their advisors.

The LIPA Act states that "prior to proceeding" with an acquisition of any LILCO assets, (including the purchase of Shoreham for one dollar), the LIPA Board of Trustees (the

"Trustees") shall determine "that the rates projected to be charged after such asset acquisition and for such reasonable period of time as the Trustees may determine will not be higher than the rates projected to be charged by LILCO during such period if such asset acquisition had not occurred."

This determination is herein referred to as the "Comparative Rate Determination".

On May 19, 1988, the Trustees requested the firm of Lazard Freres & Company ("Lazard") to conduct a study for use by the Trustees in making the Comparative Rate Determination. Specifically, Lazard was requested to prepare an analysis of the rates that would be charged to electric and gas customers by LILCO should LIPA proceed with the asset acquisition of Shoreham for one dollar as compared to rates which would be charged by LILCO if the asset aquisition did not occur. A 15-year time horizon was selected for the period of analysis. This study is herein referred to as the "Comparative Rate Analysis".

With the concurrence of LIPA, Lazard utilized the services of the following firms to assist in the preparation of this Comparative Rate Analysis Report (the "Report") and such firms rendered such services or provided such advice as is indicated below: Resource Management International, Incorporated ("RMI") for engineering and financial modeling; Touche Ross & Co. for tax and regulatory accounting; the law firm of Skadden, Arps, Slate, Meagher & Flom to provide legal counsel on tax, corporate and regulatory issues; and the law firm of Willkie Farr & Gallagher to provide legal counsel on condemnation and municipal bond issues. For convenience of reference only, throughout the body of this Report Lazard and such firms will be referred to collectively as the "Study Team".

SECTION II

METHODOLOGY AND ASSUMPTIONS

This section describes the principal methodology and assumptions utilized by the Study Team in reaching the conclusion that ratepayer savings would be achieved. The Study Team believes the methodology and assumptions are reasonable for the purposes of this Report; however, actual conditions may vary from the assumptions used herein, and actual savings and other results may correspondingly vary from those projected. This section also documents the sources of key assumptions and the methodology used in computing the revenue requirements for the LILCO scenarios.

Methodology

The Report presents rate savings over a 15-year period (1989-2003) to utility consumers in the LILCO service area resulting from an asset acquisition of Shoreham by LIPA and the other terms and conditions contained in the Settlement Agreement. The 15-year period is hereinafter referred to as the "Study Period". This study has been undertaken to review the proposed settlement of the issues outlined above in the context of the ultimate effect of the settlement on average rates under two mutually exclusive scenarios:

- LILCO with the settlement; and
- LILCO with Shoreham-in

The comparison of these scenarios under assumed financial and operating conditions is hereinafter referred to as the "Base Case".

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As a member of the New York Power Pool ("NYPP"), LILCO's electric production facilities are dispatched by NYPP. For purposes of this Report, it is assumed that LILCO will continue to operate within the NYPP environment. Therefore, the Study Team concluded that a production cost simulation incorporating each of the NYPP members was important to the analyses undertaken. Source data for the production costing was based on information developed by LILCO, NYPP, PSC, the New York State Energy Office ("SEO"), and others. The results of these simulations were used as input to the financial simulations.

Projections of depreciation, income taxes, and profits under the LILCO ownership scenario were derived using a financial model which simulates the PSC ratemaking process. Non-fuel operating expenses for LILCO, such as property taxes (or payments in lieu thereof) and operation and maintenance ("O&M"), were projected from historical data that were adjusted based on projections of load growth, inflation and future capital additions. Fuel and purchased power costs were calculated using a production costing model which simulates the operation of the utility generating system and NYPP.

The discount rate used for present value analysis was nine percent. The revenue requirements for the provision of electric and gas service over the Study Period under the LILCO Settlement were compared on a present value basis with the revenue requirements of LILCO operation without any sale of Shoreham to LIPA. Finally, the total present value savings from the LILCO Settlement were calculated both as a dollar amount and as a percentage of total present value revenue requirements of the corresponding LILCO-Shoreham-In scenario. Unless otherwise indicated herein, percentage savings are expressed in terms of the revenue requirements of the LILCO Shoreham-In scenario, with revenue requirements of the gas system kept neutral. All measurements of savings are expressed in present value terms as of January 1, 1989.

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LILCO Settlement Scenario

In general, the Study Team has adopted the assumptions, terms and conditions of the Settlement as set forth in the various draft Settlement documentation provided to the Study Team. The following is a list of the key assumptions:

1. Transfer of Shoreham to LIPA takes place September 1, 1988;
2. LILCO pays and will recover actual decommissioning costs (which are capitalized and recovered over the balance of a 40-year period commencing in 1988 and ending in 2028);
3. LILCO makes payments in lieu of Shoreham property taxes over a ten year period on a straight line declining basis. These payments are to be capitalized and recovered over a 40-year period;
4. LILCO will write off Shoreham for income tax purposes in 1988. Taxable income available for the utilization of the immediate write-off, for federal income tax purposes, of the Shoreham tax basis, will be divided equally between ratepayers and shareholders until the shareholder's total deferred tax benefits are fully realized. The resulting deferred tax benefit allocable to ratepayers will be normalized over 10 years;
5. LILCO to write-off Bokum Resources in 1988;

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6. Inflation will be 4 percent per annum during the study period;

7. LILCO to refinance $855 million in high cost G&R Bonds on October 1, 1988, and $380 million in preferred stock by 1993.

8. Sales forecast:

Year	MW	GWH
1988	3670	15310
1989	3745	15610
1990	3795	15680
1991	3830	15935
1992	3890	16235
1993	3940	16545
1994	3995	16560
1995	4045	17135
1996	4095	17425
1997	4150	17715
1998	4205	18005
1999	4260	18300
2000	4310	18605
2001	4375	18915
2002	4445	19235
2003	4515	19560

9. Fuel escalation (net of inflation):

	Oil	Nuclear	Coal
1988 - 1992	0 percent	0 percent	0 percent
1993 - 2003	2 percent	0 percent	1 percent

10. Operation and maintenance and property tax expenses escalate at the assumed general level of inflation.

11. Refinancing of debt and new construction issues are assumed to be accomplished to achieve a target capitalization structure of approximately 60 percent debt, 32.5 percent common stock, and 7.5 percent preferred stock. Debt is sold without amortization installments prior to its final maturity.

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12. A minimum of $100 million in tax-exempt industrial development bonds (IDB's) are sold each year during the years 1989 through 1993.

13. LILCO's incremental cost of common equity will be 14.2 percent, 13.25 percent, 13.0 percent, and 12.75 percent, respectively, in the period 1988-91, dropping to 11.75 percent for the remainder of the Study Period. The incremental cost of preferred equity and debt will be 10 percent and 10.5 percent, respectively, throughout the Study Period.

14. LILCO will pay all arrearages on preferred dividends in the first quarter of 1989 and maintain current preferred dividends throughout the Study Period. LILCO will establish common stock dividend payouts of $1.00 per share in 1989, $1.50 per share in 1990, and $2.00 per share in 1991, and an 85 percent payout ratio (as a percentage of earnings) for the remainder of the Study Period. LILCO is assumed to pay federal income taxes on its taxable income (net of investment tax credits associated with Nine Mile Point 2) at a 34 percent marginal rate.

LILCO-Shoreham In Scenario

The LILCO-Shoreham In scenario utilized the same assumptions as did the LILCO Settlement scenario with respect to load forecasts, implementation of a DSM program, fuel prices, availability of the Mid-Sound Project and Nine Mile Point 2, financial assumptions and other general study conditions. In addition, it was assumed that LILCO would be able to operate Shoreham at full power beginning January 1, 1989. The following are key assumptions associated with the LILCO-Shoreham In scenario which differentiate it from the LILCO Settlement Scenario:

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1. The imprudency disallowance related to Shoreham and Nine Mile Point 2 is sustained and LILCO writes down approximately $1.3 billion of equity (net of taxes) in 1988.

2. No tax-exempt IDB's will be issued during the Study Period.

3. Refinancings of debt and new construction issues are assumed to be accomplished to achieve a target capitalization structure of approximately 60 percent debt, 32.5 percent common stock, and 7.5 percent preferred stock. Debt is sold without amortization installments prior to its final maturity.

4. The PSC will authorize rates to include full recovery of and return on LILCO's prudently-incurred investment in Shoreham and Nine Mile Point 2.

5. The RMP will be implemented generally in accordance with the PSC's Order in PSC Case 28252 (i.e., a phase-in of the prudently-incurred costs of Shoreham and the deferrals within 15-years).

6. LILCO operates Shoreham successfully beginning January 1, 1989. The average capacity factor achieved by Shoreham throughout the Study Period is approximately 60 percent.

7. Additional capital expenditures for Shoreham will be necessary to meet Nuclear Regulatory Commission ("NRC") requirements as well as to ensure reliable service. Such capital expenditures have been estimated at approximately $50 million per annum in 1989 and escalating thereafter, based on LILCO rate filings before the PSC.

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8. No additional baseload resources will be placed into service during the Study Period.

9. Full Shoreham and other property taxes are paid throughout the Study Period.

10. Decommissioning Shoreham from the 100 percent power level is assumed in the year 2028 at a cost of approximately $300 million in 1988 dollars, including personnel and other operating costs. Annual contributions to a Shoreham nuclear decommissioning account are made to fund this future liability.

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SECTION III

RATE COMPARISON

The Base Case compares the utility system revenue requirements of LILCO-Shoreham in to the revenue requirements of the LILCO Settlement scenario, including the sale of Shoreham to LIPA for one dollar. In the Base Case, total savings resulting from the LILCO Settlement are projected to be approximately 1.8 percent of the corresponding LILCO-Shoreham in electric system revenue requirments or approximately $400 million on a present value basis. Projections of revenue requirements were made for both the gas system and the electric system. Adjustments were made to keep gas system revenue requirements neutral; as a result, the percentage savings should be interpreted as applicable to the average rates of only the electric customers of LILCO.

The Base Case contains reference levels of assumptions for load growth and fuel prices in projecting both LILCO's and LIPA's revenue requirements. A listing of key Base Case assumptions is provided above.

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The table below shows the projected electric revenue requirements for LILCO Settlement and compared with LILCO-Shoreham In*. The difference in results between LILCO Settlement and LILCO-Shoreham In represents the rate savings resulting from the Settlement.

Present-Value
Revenue Requirement Comparison
(Dollars In Millions)
(1989-2003)

	LILCO Shoreham-In	LILCO Settlement	Savings	
			Present Savings	Percent
Operations & Maintenance	$ 10,284	$ 10,358	$ (74)	(0.3)%
Taxes Other than FIT	3,848	3,205	643	2.9
Federal Income Tax	1,132	1,100	32	.1
Capital	7,271	7,453	(182)	(0.9)
Gas Savings	—	7	(7)	(0.0)
Total Cost of Service	$22,536	$22,125	$411	1.8%

The analysis indicates that LILCO's average rates under the Settlement are projected to increase by approximately 4.9 percent per annum during the Study Period. Correspondingly, LILCO's rates assuming no Settlement were to occur are projected to increase by approximately 5.2 percent per annum during the Study Period.

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* The rates for both LILCO scenarios have been moderated over the Study Period to provide for level increases.

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The Study Team believes the Base Case assumptions are reasonable for the purpose of this Report. However, actual conditions may vary from the assumptions used herein and actual savings and rates will correspondingly vary from those projected.

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STATE OF NEW YORK
DEPARTMENT OF PUBLIC SERVICE

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TO:

Contact:

CHARLES DICKSON

For follow-up questions on this analysis.

(518)474-2537.

From: William J. Cowan
General Counsel

STATE OF NEW YORK
DEPARTMENT OF PUBLIC SERVICE

April 14, 1989

Comparative Economics of Shoreham Settlement and Shoreham In-Service

The attached analysis compares the economics of the Shoreham settlement[1] with the "Shoreham in" scenario. For the 10 years ending 1998, annual rate increases are projected to be 1.2% higher per year with "Shoreham in" than under the settlement. Although the analysis projects rates with Shoreham in service eventually to be lower than rates under the settlement, this does not occur until after the year 2000, near the end of the study period. By then, ratepayers will have paid about $2.5 billion in rates above the amount they would pay under the settlement. It will take several additional years beyond the turn of the century for ratepayers to break even.

There are several additional qualitative factors, not reflected in the analysis, that favor the Shoreham settlement over Shoreham operation. First, the analysis did not consider the potential reliability problems created by Shoreham's operation. The Shoreham in scenario assumes the plant will operate reliably from the start. The analysis did not consider the reliability strains an immature nuclear plant (principally, reduced availability) can put on an electric system. Our experience with Nine Mile Point II, for example, indicates that a new nuclear plant may need at least one year to reach a reliable level of operation. The failure of Shoreham to operate reliably from the start would create replacement power costs for LILCO that were not reflected in the Shoreham scenario.

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[1] The analysis was based on the 1988 settlement; the 1989 settlement and rate plan project generally similar (even slightly lower) rate increases.

Similarly, a nuclear power plant may be subject to unscheduled outages that create added costs for consumers. While it is difficult to predict when an unscheduled outage will occur (the Shoreham in scenario assumes none), the experience in New York is that prolonged, unscheduled outages will occur even with mature plants. Currently, the Nine Mile Point I unit has been out of service for 16 months and its owner has been forced to replace its output with more expensive power. This factor, too, adds risk to the Shoreham in scenario.

Another uncertainty of Shoreham's operation concerns LILCO's ability to bear the asset concentration risks of an operating nuclear plant. LILCO is among the financially weakest electric utilities in the nation and its eventual financial recovery will take most of the 1990s. The risks of having a single asset comprising 60% of the company's total assets and more than 1 1/2 times the company's common equity are substantial. Any event that threatens LILCO's ability to recover Shoreham costs or replacement power costs will threaten the company's financial viability and further postpone its gradual financial recovery.

Finally, the NRC's recent adoption of the "external" funding method for nuclear decommissioning costs adds an expense not reflected in the Shoreham-in scenario. While utilities previously used funds collected for decommissioning to finance ongoing projects, the NRC now requires utilities to set aside the expenses in an external investment fund. This method eliminates a rate base offset and increases the utility's revenue requirement.

PSC STAFF COMPARISON
ECONOMICS OF SHOREHAM OPERATION vs. ABANDONMENT

This is a side-by-side comparison of the proposed LILCO settlement with a scenario where Shoreham operates. The Shoreham in analysis includes:

a) higher kwh sales growth consistent with the availability of Shoreham to meet demand

b) fuel savings because Shoreham displaces some existing oil generation as well as meeting the higher load in (a).

c) higher operating expenses (Shoreham O&M) capital additions (post-operational expenditures) and property taxes

and

d) lower conservation expenditures if Shoreham operates. We assume here that LILCO makes "normal" outlays but not the "aggressive" conservation assumed in the Settlement.

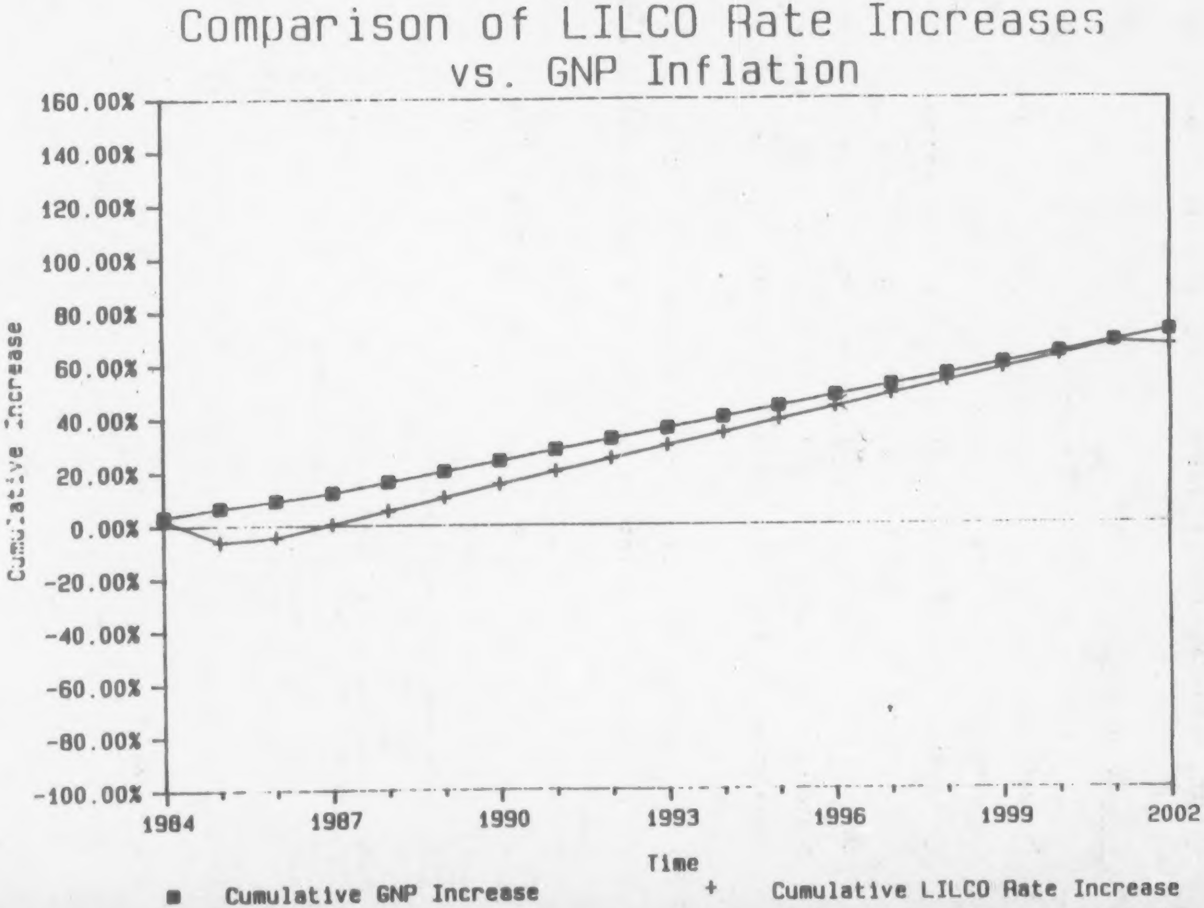
This memo also describes the energy supply plan underlying each scenario and the likely response to changes in forecast demand if recent kwh growth continues. In addition to summarizing the results of our analysis and principal differences between the two scenarios, we have included a technical Appendix which explains differences in greater detail. Computer printouts showing financial results by year through 2002 are available upon request.

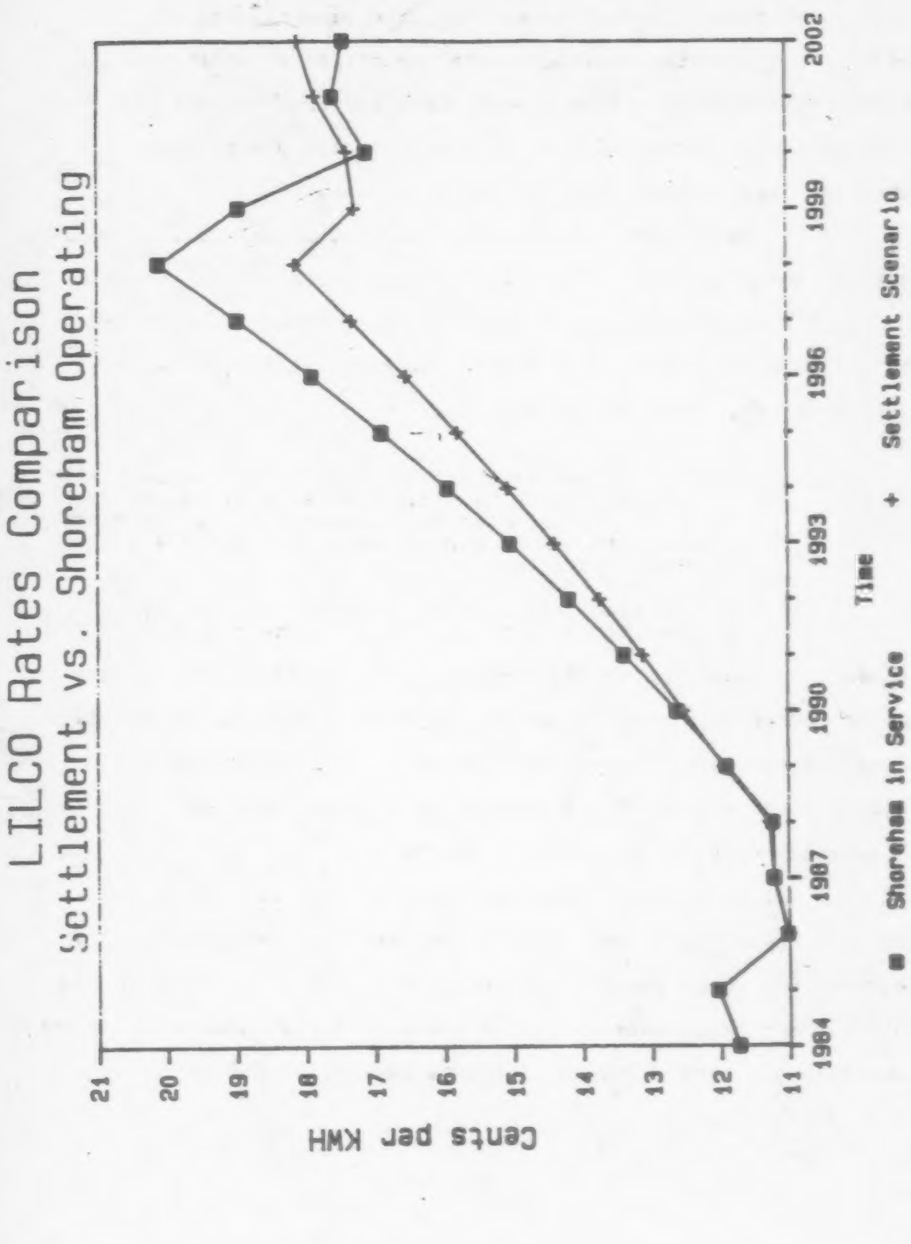
Summary of Results

Chart I shows the forecast change in LILCO's rates under the Settlement and Shoreham operating. The average levelized rate increase through 1998 is 4.8% under the settlement and 3.7% if the analysis is extended through 2002. The estimates with Shoreham operating are 6.0% over the initial 10 years, but only 3.8% through 2002, reflecting the substantial drop in rates once the plant is fully phased into rates. Chart 2 shows LILCO's forecast rates under the Settlement compared to general inflation from 1984 to 2002.

Reconciliations of the differences in levelized cost per kwh between the two scenarios for both study periods are summarized below:

	Cents/kwh	
	1988-98	1988-02
Levelized cost - Settlement	13.89	14.44
Shoreham operating expenses, capital additions and property taxes, less fuel savings	.02	.03
Additional sales with Shoreham operating	(.06)	(.09)
Settlement adjustments:		
(a) higher write-off of investment	.28	.26
(b) lower equity ratio	.18	.18
(c) lower equity cost	.07	.07
(d) lower debt cost	.03	.03
Delay in refunding high coupon debt	.05	.04
Shoreham-in Service	14.46	14.96


Comparison of LILCO Rate Increases
vs. GNP Inflation
160.00%
140.00%
120.00%
100.00%
80.00%
60.00%
40.00%
20.00%
0.00%
-20.00%
-40.00%
-60.00%
-80.00%
-100.00%
Cumulative Increase
1984
1987
1990
1993
1996
1999
2002
Time
■ Cumulative GNP Increase
+ Cumulative LILCO Rate Increase



LILCO Rates Comparison

Settlement vs. Shoreham Operating

Shoreham's operation and "normal" conservation act to reduce rates over the period because the margin on additional sales, avoided conservation expenditures and fuel savings more than offset the high estimated cost of operating the plant, post-operation capital additions and property taxes.

The Settlement has certain financial advantages, however: because operation of a nuclear facility is perceived by investors to entail greater risk, especially in a hostile environment, the cost of debt and equity is higher. The comparative analysis compensates for this risk in two ways:

(1) LILCO's common equity investment (its risk capital) is presumed to be higher. The ratio of common equity to total capital averages about 30% in the settlement compared to a more normal level of about 40% with Shoreham operating.

(2) In addition, the cost of both debt and equity is assumed to be .25% lower with the settlement.

In addition, both the stronger equity position and higher equity return increase federal income tax payments. Finally the benefits of refunding higher coupon debt issues is delayed two years to recognize the effect of the continuing Shoreham related uncertainty on LILCO's financial prospects.

The final major difference between the settlement and Shoreham operating is the level of ratemaking disallowances. The negotiations which lead to the settlement produced a write-off of $250 million of investment beyond the $1.4 billion assessed by the Commission in 1985. The smaller rate base under the settlement reduces LILCO's revenue requirement and rates throughout the study period.

Description of key-non-financial Assumptions

Many aspects of LILCO's operations will be the same whether Shoreham operates or not. Operating expenses other than production, routine capital expenditures and most property taxes, for example, are common to each scenario. In addition, both studies assume that the Long Island Sound cable will be in service in 1992 and 238 MW of gas turbines are placed in 1989. However, several factors bear heavily on the relative economics of operating Shoreham and they are discussed below:

a) Forecast sales: as mentioned above, the Settlement presumes that LILCO undertakes an aggressive conservation program which is designed to reduce LILCO's peak demand by 280 MW compared to the Shoreham operating scenario. Total sales also are reduced and LILCO's estimated growth in Kwh sold is 1.64% under the Settlement compared to 1.80% with Shoreham operating.

Recent growth in sales has been higher than the 1.8% base forecast, although 1988 consumption was undoubtedly affected by the extremely hot summer. Nonetheless, it is impossible to predict kwh sales growth with precision and higher sales clearly are possible.

Additional sales on peak will stretch thin LILCO's meager generating resources. The likely reaction to increased sales is described later under Energy Supply plan. Higher sales also have a salutary effect, however, allowing fixed costs to be spread over greater units. On the basis of our forecasts of fossil fuel prices during the study period, additional sales will be sold at a price higher than the marginal cost of production and therefore the sales will reduce the rate increase required under either scenario.[1]

b) Conservation expenditures: The settlement presumes that LILCO will make an extraordinary effort to reduce consumption in its service area. A normal level of conservation expenditures, $11 million in 1988 and escalated thereafter at inflation, is common to both scenarios. The aggressive conservation program contemplated by the Settlement requires expenditures of $27 million in 1989 and averages $33 million per year during the study period. As discussed earlier, this program reduces both peak and total Kwh consumption. Under the aggressive conservation program, LILCO spends $473 million to save 280 MW on peak. The projected cost to the utility is less than $1,700 per kw and would be less expensive than the cost of the Somerset plant considering inflation.

c) Fossil fuel prices: oil prices are forecast to increase at the general inflation rate (4%) through 1991. Thereafter fuel prices are escalated at 2% over inflation (or 6%, here).

This forecast differs somewhat from the estimates used by the Commission in its recent long run avoided cost opinion. Price increases are lower in the early years, slightly higher from 1992-96 and significantly lower in the late 1990's. The continuing softness in the oil markets supports a lower forecast in the early years and possibly lower increases through the mid-1990's. The uncertainty about oil prices in the mid to late 1990's is large; tightening markets could result in higher than forecast increases. Given a real price increase of 2% beginning in 1992 the forecast does not seem unreasonable.

d) Shoreham operating expenses and post-op additions: The operation and maintenance expense (O&M) expense for the Shoreham-in scenario assumed $68.5 million for the initial operation in 1989, followed by $109.8, $110.2 and $110.6 million for 1990, 1991 and 1992, respectively, then $110.9 million in 1993, followed by 1.8% escalation in subsequent years. The Power

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[1] These forecasts do not capture the costs of damage to our environment or depletion of finite resources which are potentially very large but not readily quantifiable.

Division believes these magnitudes are in reasonable agreement with the trend of historical experience for single-unit boiling water reactors (BWR). For example, the actual range of 1986 expenditures for the older single-unit BWRs that went into commercial operation in the early 1970's is $23 to $144 million (in 1990 dollars).

The most recent single-unit BWRs for which a full year of data are available are the Hope Creek and Limerick plants. For these plants, the O&M expenses in 1987 were $65 and $136 million, or $73 and $153 million in 1990 dollars.

A comparison of projected expenses for Nine Mile Point Unit No. 2 with Shoreham shows that the Nine Mile Plant is expected to have expenditures close to the level assumed for Shoreham ($90 million in 1988-89).

The capital additions for the Shoreham-in scenario assumed $79.1 million in 1990, followed by $84.3 and $76.7 million in 1991 and 1992, respectively, then $73.9 million in 1993, followed by 1.8% escalation in subsequent years. The range of capital addition costs for plants built in the early 1970's has significant variation because of the manner in which capital additions occur and can be extremely high. For example, in 1984, two single-unit BWRs underwent $127 and $166 million in capital additions ($1984).

A comparison of the expected Nine Mile Point Unit No. 2 additions to those assumed for Shoreham shows that Shoreham post-capital additions are expected to be larger. Presumably, this is because of the enhancements that LILCO has offered to the NRC--such as a separate filtered vent building, a first of its kind in this country.

In conclusion, projected Shoreham O&M expense is within the wide range of expenditures experienced at other single-unit sites. Expenses vary considerably by age. The O&M forecast for Shoreham is about 20% higher than Nine Mile 2.

Capital additions are very difficult to forecast, driven in large part by changing NRC requirements. The Shoreham forecast is higher than Nine Mile 2, but the difference is not significant.

Energy Supply Plan

The supply plan that underlies the Settlement contains a number of forecasts. These include load growth, the load reduction obtained by demand-site management, the amount of independent power projection (IPP), and the emergency support available from the New York Power Pool. Each of these forecasts is subject to considerable uncertainty and will be discussed individually below. A common forecast in both scenarios is the addition of 238 mW of gas turbines in 1990. This is an important factor in service reliability in the near term.

Load Growth

The load growth forecasts used were LILCO's latest projections. They were reviewed and accepted by staff. Nevertheless, the peak load projection for 1988 was 3735 mW, almost 100 mW below the actual peak load experienced this summer. Load on Long Island has shown the potential to grow faster than assumed in the supply plan. In addition to economic growth, however, we believe weather this year was a substantial contributor to the increase. If growth exceeds projections, additional supply sources or greater demand-side management will have to be developed under either scenario.

If load growth continues as in recent years, profits on sales will also increase. Even if additional capacity must be built to meet peaks, higher sales should provide a margin of profit to LILCO.

Conservation

Up to 300 mW of conservation and demand-side management are assumed in the Settlement plan. It is worth noting that the settlement assumes about $30 million per year for up to 300 mW of conservation while it assumes $11 million, escalated at 4 percent per year, for only 20 mW of conservation in the Shoreham-in scenario. LILCO apparently believes the forecast level of penetration is possible. It is not possible at this time to judge the estimated cost.

Independent Power Production

The settlement assumes a level of independent power projection (IPP) of 275 mW in 1992, escalating to only 350 mW at the end of the study period. The assumptions are the same for the Shoreham-in scenario. LILCO has 820 mW of IPP under negotiation. Based on our knowledge of the state of those negotiations, we find the 275 mW estimate in 1992 to be reasonable. Based on the interest apparent by such producers, however, we find the estimate of only 350 mW by the end of the study period to be pessimistic. We anticipate a much larger amount of IPP which would serve to offset errors in the estimates of load growth and conservation. Independents could provide a significant amount of capacity on the Island and aid reliability.

Emergency Support

The energy supply plan for the settlement does not assume the construction of sufficient capacity on Long Island to meet the near-term projected requirements. Between 550 mW and 1150 mW of capacity are assumed to be available for import from the New York Power Pool. Such an assumption may be feasible, but raises several questions which apparently were not addressed. 1150 mW approaches the maximum capacity of LILCO's share of the ties to Long Island. None of the upstate utilities has plans to construct capacity to sell to LILCO, so there is no assurance that the capacity will be available for sale. If upstate loads continue to grow strongly, the upstate utilities may themselves need capacity earlier than past projections indicate. This could result in earlier construction of supply options on Long Island or the allocation of more Canadian power. Moreover, the import of 1150 mW will present a difficult operating problem caused by the potential loss of the transmission. It is also not clear in reviewing the technical tables that adequate funding was included for the capacity assumed to be available from upstate. The numbers, however, were prepared by LILCO.

The Shoreham-in scenario does include enough capacity on Long Island to supply the projected load without the reliance on the tie to upstate. Shoreham itself raises a problem because of the size of the unit compared with the system. Nevertheless, the reliability of the Shoreham-in scenario should be greater than the settlement scenario. The ties to other systems will be available for emergency support (e.g., the loss of Shoreham) rather than needed to support load under normal conditions.

Other risks of abandonment

There are two potentially significant risks to closing the Shoreham plant, one of which was discussed during the Settlement proceedings.

LILCO expects to claim a casualty loss on its Shoreham investment, approximating $2.5 billion, on its federal tax return, virtually eliminating tax payments through the mid 1990's.[2] Because the dollars at stake are very large and there is no clear precedent in tax cases, it has been suggested that the IRS might disallow the deduction and LILCO, in fact, has asked for an IRS ruling on the deductibility of its investment.

Our staff has researched the issue and we see no basis in similar cases for an IRS disallowance. A corporation generally is entitled to take a casualty loss on a property if the taxpayer establishes that the property was abandoned (the extent of the loss would depend on whether all or part of the investment was recovered through insurance). The IRS has not questioned the prudence of abandoning other utility projects (see attached IRS letter ruling) and, in any event, LILCO could make a compelling case that the Settlement was a sound business judgement, necessary for its fiscal survival (and continuing status as a federal taxpayer).

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[2] If Shoreham operated, the investment would be written off over 10 years and the tax consequences are similar.

The second major risk, that LILCO might be required to redeem its outstanding first mortgage and G&R (essentially a second mortgage) bonds, was not discussed in the settlement proceeding.

The settlement anticipates that LILCO's G&R bonds will be upgraded to at least BBB-and that new debt will be issued at 10.5%. The abandonment or sale of Shoreham could trigger retirement of the company's existing low coupon 1st mortgage debt and perhaps some G&R debt. Also, the company's ability to issue more G&R bonds is not certain.

The problem with the existing debt is that Shoreham has been used as bondable property under both the 1st mortgage and G&R indentures. The abandonment or sale of the plant may leave LILCO with insufficient bondable property. Normally, abandonments, depreciation and early retirements are replenished under the indentures with new property. Due to the size of the Shoreham write-off, the replacement will not take place for years.

Further complicating matters, LILCO's 1st mortgage requires new property or cash deposits equal to the greater of depreciation or 15% of revenue. The Shoreham abandonment may count as depreciation, thereby requiring large cash deposits with the Trustee which would be used to redeem outstanding bonds. Under these circumstances, early retirement of the low coupon 1st mortgage debt may be the only practical alternative.

Settlement rate increases did not assume any early retirement of LILCO 1st mortgage debt, but the settlement provides for deferral and recovery of the cost of any early retirement of debt as well as any added interest costs incurred by LILCO above the 10.5% assumptions.

The early retirement of 1st mortgage debt would be expensive for ratepayers, since the average coupon on the $450 million of debt is 6.6% and new debt was estimated in the settlement at 10.5%.

Assuming 1st mortgage debt was promptly redeemed after the settlement with 10.5% debt, annual debt costs are estimated to be higher as follows:

	Increase in Interest Exp.
1989	17.5
1990	17.5
1991	16.1
1992	16.1
1993	15.9
1994	13.5
1995	12.0
1996	10.5
1997	8.4
1998	6.9
1999	6.9
2000	6.1
2001	5.8
2002	3.0
2003	1.5
	157.7

It is not clear whether LILCO would have to retire any G&R debt early due to the Shoreham sale or abandonment. However, LILCO's outstanding G&R debt has an average coupon of 12.8% and early retirement of all of the debt would not impose an economic penalty on LILCO or its ratepayers.

The removal of Shoreham investment from bondable property would leave a deficit of about $1.5 billion which would be made up over time with future capital investment or bond retirements. There is uncertainty about LILCO's ability to issue new G&R debt[3] until the property deficit is made up. LILCO currently expects to issue junior obligations (unsecured debentures) until the mortgage questions are resolved. The debentures may be rated lower than the G&R debt and therefore may carry a coupon of 50 basis points (0.5%) higher than triple-B rated debt. Nonetheless, current estimates of the cost of LILCO debentures of intermediate term are close to the forecast used in the Settlement.

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[3] According to the terms of its G&R indentures LILCO can issue 1st mortgage bonds only as additional security for the G&R bonds.

General and specific words in a statute which are associated together, and which are capable of an analogous meaning, take color from each other, so that the general words are restricted to a sense analogous to the less general. Similarly, in accordance with what is commonly known as the rule of ejusdem generis, where, in a statute, general words follow a designation of particular subjects or classes of persons, the meaning of the general words will ordinarily be presumed to be, and construed as restricted by the particular designation, and as including other things or persons of the same kind, class, character, or nature as those specifically enumerated. In accordance with the rule of ejusdem generis, such terms as 'other', 'other thing', 'other persons', 'others', 'otherwise', or 'any other', when preceded by a specific enumeration are commonly given a restricted meaning and limited to articles of the same nature as those previously described.

In the instant case, the general term "or otherwise" is preceded by a particular type of payment which will constitute compensation — "insurance". We believe the term "or otherwise" should be given a restricted meaning and limited to payments which are similar to, or are of the same nature as, "insurance". This interpretation is supported by Estate of Bryan v. Commissioner, 74 TC 725 (1980), in which the meaning of the phrase "or otherwise" as used in section 165 was in issue. The court stated that "[u]sing the principle ejusdem generis, the general words "or otherwise" must be construed consistently with the specific term 'insurance'. If the payment was similar to insurance, it falls within the meaning of the statute." Id. at 727-28. See also Shanahan v. Commissioner, 63 TC 21, 23 (1974), ("Under the rule of ejusdem generis the general words 'other compensation' are to be construed in a manner consistent with the specific meaning of the word 'insurance'; thus, if the forgiveness of indebtedness was similar to insurance ... it will come within the meaning of 'other compensation'.")

These cases make clear that the "insurance or otherwise" language in section 165 contemplates that the type of compensation received must be such that it was structured to replace what was lost. See Estate of Bryan, supra, at 727. Unlike insurance, a rate increase is not structured to replace what was lost. A rate increase applied for by a utility is by no means guaranteed merely because the utility has suffered a loss. Although a utility commission may give consideration to the fact that a utility suffered a loss in determining whether a rate increase is warranted, the rate is not structured to reimburse the utility for its losses as such. Rather the rate increase is structured to enable the utility to perform its functions of serving its customers at a fair charge, while at the same time maintaining its financial integrity, and its ability to attract capital at reasonable terms by paying its investors a reasonable rate of return on their investment. In addition, insurance payments are generally treated as a return of capital to the extent of the taxpayer's basis in the property and are recovered tax free. [redacted] section 61(a). It follows that since a rate increase is not similar to an insurance payment, the "compensated for by insurance or otherwise" restriction in section 165 does not operate to disallow the utility a loss deduction for its unrecovered costs of the abandoned facility.

Moreover, even if the statutory language "compensated for by insurance or otherwise" is interpreted to include compensation other than that which is in the nature of insurance, the nexus between the loss and the "compensation" must be direct in order to deny a loss deduction under section 165. See Forward Communications Corp v. United States, 608 F.2d 485 (Ct. Cl. 1979), where the court recognized that when the taxpayer dropped its affiliation with CBS to maintain an exclusive affiliation with ABC it suffered a loss. Through its increased revenues from its exclusive ABC affiliation, the taxpayer was able to show a net profit for the year. In finding that there was not a sufficient nexus between the increased revenues and the loss from the abandoned affiliation to hold that the former was compensation for the latter, the court stated that "[t]he statute [section 165] does not bar a deduction for a loss actually incurred merely because the taxpayer is able to effect an offsetting gain on a different although contemporaneous transaction."

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See also Freitas Dairy Inc. v. United States, 582 F.2d 500 (9th Cir. 1979) where the court stated that a loss can not be denied simply because the loss may not be wholly disadvantageous to the taxpayer. Similarly, in Boston Elevated Railroad Company v. Commissioner, 16 TC 1084 (1951), aff'd. On another issue 196 F.2d 923 (1st Cir. 1952), it was held that there was not a sufficient nexus between the loss from the demolition of one of the taxpayer's structures, and payment to the taxpayer under the Public Control Act, to justify finding the taxpayer had been compensated for its loss for purposes of section 165.

Regulatory Commissions set rates on the basis of their estimate of a utility's revenue requirements. Revenue requirements are determined by projecting costs; i.e., by increasing or decreasing operating and maintenance costs, depreciation and amortization, and taxes (including taxes on income) and adding an amount that will produce a predetermined rate of return on the utility's investment in its plant and supporting assets. In allowing utilities to amortize their investment in abandoned nuclear power plants, the regulatory commissions are treating the amount of the annual amortization, for rate making purposes, in the same way as any other cost of providing electric service. Here, Taxpayer filed a proposed rate increase with The Commission, and in partial justification for the increase stated that its proposal was intended, among other things, to permit the utility to recoup, over time the investment it had lost on The Project. The Commission issued a rate order in the following year that (1) granted a rate increase, but in an amount substantially less than that requested by Taxpayer; (2) permitted Taxpayer to write off the estimated net book loss (the unamortized balance on its investment in The Project), but over a period of years ***** as long as Taxpayer had requested (thereby prolonging the period necessary to recover the investment and requiring ratepayers to bear some of The Project's cost); and, [redacted]

The Commission treated Taxpayer's increased amorization cost, incurred by the abandonment of The Project, the same way it treated any other increased cost of providing electric service. The projection of increased costs merely recognized that Taxpayer's operating costs had increased, and that a rate increase was justified. [redacted] Any increase in rates will produce taxpayable income to Taxpayer. Accordingly, the nexus between Taxpayer's loss and the rate increase is not sufficiently direct to warrant a denial of the loss deduction under section 165 of the Code.

CONCLUSION

Assuming for purposes of this memorandum that Taxpayer's abandonment of its interest in The Project has been established, we conclude that Taxpayer has not been "compensated" for its loss and, hence, should be permitted the deduction allowed under section 165 of the Code. We were not requested to, nor have we, addressed the factual issue of whether there has been a complete and final abandonment of The Project. The District Director is in the best position to make the ultimate determination in this regard, and in determining both the year in which the loss was sustained and the dollar amount of said loss.

A copy of this technical advice memorandum is to be given to Taxpayer. Section 6110(j)(3) of the Internal Revenue Code provides that it may not be used or cited as precedent.

LTR 8639002, May 30, 1986

Symbol: TR-32-13635-86

NATIONAL OFFICE
TECHNICAL ADVICE MEMORANDUM

[Code Sec. 2056]

Bequests, etc., to surviving spouse; Marital deduction v. not marital deduction; Limitation on amount of marital deduction; Interrelated computation not required by children's disclaimer.—CCH.

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LTR 8639001, May 7, 1986 Reference #1

Symbol: 4C1528

NATIONAL OFFICE
TECHNICAL ADVICE MEMORANDUM

[Code Sec. 165]

Losses; Deductible v. not deductible; Trade or business; Loss on abandoned nuclear power project.—CCH.

ISSUE

Whether Taxpayer suffered a deductible loss under section 165(a) of the Internal Revenue Code; and, if in fact it did, when was the loss sustained and in what amount?

FACTS

Taxpayer was ***** percent participant in and owner of a nuclear power project located at The Site. For a number of reasons The Project was terminated in *****. An agreement, entitled *****, to terminate and abandon The Project was made and executed by all parties to The Project on *****. At the time of termination, Taxpayer's investment in The Project was approximately ***** million.

On ***** Taxpayer filed a proposed tariff revision with The Commission, the state regulatory agency having authority over its electrical rates. The Commission ordered a hearing to determine whether the proposed rates were just and reasonable. As part of the justification for the requested rate increase, Taxpayer stated that the proposed rates would include an amount sufficient to amortize over ***** years its unrecovered cost of The Project.

In ***** the Commission concluded that Taxpayer should be permitted to increase its rates so as to raise its annual revenues by approximately ***** million. In its rate order The Commission said that the estimated net took loss on The Project was ***** million, for rate making purposes, and was to be amortized over ***** years with no earnings permitted on the unamortized balance.

On its ***** return, Taxpayer made a Schedule M adjustment to deduct currently approximately ***** million, representing the tax basis of its abandonment loss on The Project.

APPLICABLE LAW

Section 165(a) of the Code provides the general rule that "there shall be allowed as a deduction any loss sustained during the taxable year and not compensated for by insurance or otherwise."

Section 1.165-1(a) of the Income Tax Regulations states:

> Section 165(a) provides that, in computing taxable income under section 63, any loss actually sustained during the taxable year and not made good by insurance or some other form of compensation shall be allowed as a deduction ....

Section 1.165-1(d)(2)(i) of the regulations adds that:

> If a casualty or other event occurs which may result in a loss and, in the year of such casualty or event, there exists a claim for reimbursement with respect to which there is a reasonable prospect of recovery, no portion of the loss with respect to which reimbursement may be received is sustained, for purposes of section 165, until it can be ascertained with reasonable certainty whether or not such reimbursement will be received. ... Whether or not such reimbursement will be received may be ascertained with reasonable certainty, for example, by a settlement of the claim, by an adjudication of the claim, or by an abandonment of the claim. ...

Thus, the pivotal issue is whether the rate increase granted to Taxpayer by The Commission should be characterized as "compensation" derived from a "claim for reimbursement" so as to bar or reduce any loss deduction under section 165.

RATIONALE

The first consideration in addressing this issue is to determine how broadly the language "compensated for by insurance or otherwise" should be interpreted, and then, to determine if the rate increase, or any part of it, granted by The Commission falls within this interpretation. The following general aids to statutory construction appear in 73 Am. Jur. 2d Statutes 214 (1963):

Shoreham Settlement Agreement

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Pre Tax Return	$710.9	$763.7	$772.1	$742.0	$744.7	$737.6	$731.7	$717.9	$755.7	$808.5	$901.6	$877.4	$897.1	$873.0
Property Taxes	$185.9	$196.2	$204.0	$212.2	$220.8	$229.6	$238.7	$248.2	$270.5	$281.3	$305.6	$317.9	$344.8	$358.6
Miscellaneous Taxes	$108.3	$100.4	$108.4	$114.8	$121.6	$128.9	$136.5	$144.8	$153.3	$162.5	$158.0	$161.7	$168.4	$173.6
Depreciation	$191.7	$199.5	$206.3	$213.1	$219.0	$224.8	$229.9	$234.7	$247.0	$251.4	$264.7	$269.8	$284.6	$290.2
RMP Amortization	($189.3)	($195.8)	($161.4)	($70.8)	($10.4)	$88.2	$137.9	$206.4	$267.8	$312.9	$0.0	$0.0	$0.0	$0.0
O&M Expenses	$357.8	$376.2	$392.6	$396.9	$420.8	$444.2	$469.9	$471.1	$501.1	$505.9	$560.7	$572.0	$601.7	$622.1
Fuel	$496.7	$523.5	$567.2	$621.5	$663.6	$687.5	$760.2	$858.2	$873.1	$944.3	$969.0	$1,036.2	$1,078.8	$1,163.6
Revenue Requirement	$1,862.0	$1,963.7	$2,089.2	$2,229.7	$2,380.1	$2,540.8	$2,704.8	$2,881.3	$3,068.5	$3,266.8	$3,159.6	$3,235.0	$3,375.4	$3,481.1

Shoreham In Service Scenario

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Pre Tax Return	$846.2	$998.8	$933.4	$884.8	$885.9	$884.8	$875.2	$867.2	$866.0	$840.3	$844.2	$874.2	$881.2	$899.3
Property Taxes	$218.5	$264.4	$273.0	$282.2	$291.8	$301.6	$311.7	$322.2	$333.3	$344.6	$365.0	$377.7	$400.0	$413.9
Miscellaneous Taxes	$108.4	$101.7	$111.3	$119.4	$128.1	$137.4	$147.4	$158.2	$169.6	$182.1	$175.3	$162.4	$169.5	$170.8
Depreciation	$149.5	$203.1	$199.2	$205.3	$213.9	$231.9	$238.7	$245.8	$252.8	$260.2	$272.4	$285.4	$298.9	$203.7
RMP Amortization	($299.3)	($450.4)	($326.4)	($160.9)	($54.5)	$59.8	$169.0	$303.0	$459.3	$700.8	$415.0	$0.0	$0.0	$0.0
O&M Expenses	$397.6	$450.1	$468.1	$477.4	$500.8	$525.1	$550.0	$550.4	$571.3	$574.7	$619.3	$636.0	$659.8	$679.3
Fuel	$443.1	$422.2	$493.1	$521.7	$555.2	$585.0	$648.7	$726.9	$773.3	$794.8	$850.0	$914.3	$989.0	$1,054.2
Revenue Requirement	$1,864.0	$1,989.9	$2,151.7	$2,329.9	$2,521.2	$2,725.6	$2,941.5	$3,173.7	$3,425.6	$3,697.5	$3,541.2	$3,250.0	$3,398.4	$3,421.2

Long Island Lighting Company
Comparison of Settlement With Shoreham In Service Scenario

(in 000,000's)

SUMMARY SHEET

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Total O & M, Property Tax and Fuel Expenses

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1988	$946.8	$936.2	$10.6
1989	$1,040.4	$1,059.2	($18.8)
1990	$1,096.0	$1,136.8	($40.8)
1991	$1,163.8	$1,234.2	($70.4)
1992	$1,230.7	$1,281.4	($50.7)
1993	$1,305.3	$1,347.9	($42.6)
1994	$1,361.2	$1,411.6	($50.4)
1995	$1,468.9	$1,510.5	($41.6)
1996	$1,577.4	$1,599.4	($22.0)
1997	$1,644.7	$1,677.9	($33.2)
1998	$1,731.5	$1,714.1	$17.4
1999	$1,835.3	$1,834.3	$1.0
2000	$1,926.3	$1,928.1	($1.8)
2001	$2,025.4	$2,048.9	($23.5)
2002	$2,144.3	$2,147.4	($3.1)
TOTALS:	$22,498.0	$22,867.9	($369.9)

Long Island Lighting Company
Comparison of Settlement With Shoreham In Service Scenario

(in 000,000's)

Settlement Agreement

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YEAR	O & M Expenses	Property Taxes	Fuel Costs	Totals	Capital Expenditures
1988	$305.1	$172.0	$469.7	$946.8	$455.4
1989	$357.8	$185.9	$496.7	$1,040.4	$327.3
1990	$376.3	$196.2	$523.5	$1,096.0	$301.3
1991	$372.6	$204.0	$567.2	$1,163.8	$332.9
1992	$397.0	$212.2	$621.5	$1,230.7	$299.8
1993	$420.9	$220.8	$663.6	$1,305.3	$311.9
1994	$444.1	$229.6	$687.5	$1,361.2	$298.3
1995	$470.0	$238.7	$760.2	$1,468.9	$361.7
1996	$471.0	$248.2	$858.2	$1,577.4	$443.2
1997	$501.1	$270.5	$873.1	$1,644.7	$376.6
1998	$505.9	$281.3	$944.3	$1,731.5	$413.0
1999	$560.7	$305.6	$969.0	$1,835.3	$356.6
2000	$572.2	$317.9	$1,036.2	$1,926.3	$468.4
2001	$601.8	$344.8	$1,078.8	$2,025.4	$382.1
2002	$622.1	$358.6	$1,163.6	$2,144.3	$497.9
TOTALS:	$6,998.6	$3,786.3	$11,713.1	$22,498.0	$5,626.4

Shoreham In

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YEAR	O & M Expenses	Property Taxes	Fuel Costs	Totals	Capital Expenditures
1988	$294.6	$172.0	$469.6	$936.2	$486.6
1989	$397.6	$218.5	$443.1	$1,059.2	$329.8
1990	$450.2	$264.4	$422.2	$1,136.8	$270.8
1991	$468.1	$273.0	$493.1	$1,234.2	$325.2
1992	$477.5	$282.2	$521.7	$1,281.4	$301.1
1993	$500.9	$291.8	$555.2	$1,347.9	$328.0
1994	$525.0	$301.6	$585.0	$1,411.6	$332.4
1995	$550.1	$311.7	$648.7	$1,510.5	$375.6
1996	$550.3	$322.2	$726.9	$1,599.4	$334.9
1997	$571.3	$333.3	$773.3	$1,677.9	$392.2
1998	$574.7	$344.6	$794.8	$1,714.1	$409.2
1999	$619.3	$365.0	$850.0	$1,834.3	$389.1
2000	$636.1	$377.7	$914.3	$1,928.1	$429.2
2001	$659.9	$400.0	$989.0	$2,048.9	$430.4
2002	$679.3	$413.9	$1,054.2	$2,147.4	$379.8
TOTALS:	$7,954.9	$4,671.9	$10,241.1	$22,867.9	$5,514.3

Long Island Lighting Company
Comparison of Settlement With Shoreham In Service Scenario

(in 000,000's)

SUMMARY SHEET

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Total O&M Expenses

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1988	$305.1	$294.6	$10.5
1989	$357.8	$397.6	($39.8)
1990	$376.3	$450.2	($73.9)
1991	$392.6	$468.1	($75.5)
1992	$397.0	$477.5	($80.5)
1993	$420.9	$500.9	($80.0)
1994	$444.1	$525.0	($80.9)
1995	$470.0	$550.1	($80.1)
1996	$471.0	$550.3	($79.3)
1997	$501.1	$571.3	($70.2)
1998	$505.9	$574.7	($68.8)
1999	$560.7	$619.3	($58.6)
2000	$572.2	$636.1	($63.9)
2001	$601.8	$659.9	($58.1)
2002	$622.1	$679.3	($57.2)
TOTALS:	$6,998.6	$7,954.9	($956.3)

Long Island Lighting Company
Comparison of Settlement With Shoreham in Service Scenario

(in 000,000's)

Operating and Maintenance Expenses

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Research and Developement

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1988	$9.0	$9.0	$0.0
1989	$15.0	$15.0	$0.0
1990	$15.8	$15.8	$0.0
1991	$16.5	$16.5	$0.0
1992	$17.4	$17.4	$0.0
1993	$17.8	$17.8	$0.0
1994	$18.2	$18.2	$0.0
1995	$18.7	$18.7	$0.0
1996	$19.2	$19.2	$0.0
1997	$19.6	$19.6	$0.0
1998	$20.1	$20.1	$0.0
1999	$20.6	$20.6	$0.0
2000	$21.2	$21.2	$0.0
2001	$21.7	$21.7	$0.0
2002	$22.2	$22.2	$0.0
TOTALS:	$273.0	$273.0	$0.0

Base Conservation O&M

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1988	$11.0	$11.0	$0.0
1989	$11.4	$11.4	$0.0
1990	$11.9	$11.9	$0.0
1991	$12.4	$12.4	$0.0
1992	$12.9	$12.9	$0.0
1993	$13.4	$13.4	$0.0
1994	$13.9	$13.9	$0.0
1995	$14.5	$14.5	$0.0
1996	$15.1	$15.1	$0.0
1997	$15.7	$15.7	$0.0
1998	$16.3	$16.3	$0.0
1999	$16.9	$16.9	$0.0
2000	$17.6	$17.6	$0.0
2001	$18.3	$18.3	$0.0
2002	$19.0	$19.0	$0.0
TOTALS:	$220.3	$220.3	$0.0

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Long Island Lighting Company
Comparison of Settlement With Shoreham In Service Scenario

(in ,000,000's)

Operating and Maintenance Expenses

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Aggressive Conservation

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1988	$10.5	$0.0	$10.5
1989	$26.6	$0.0	$26.6
1990	$31.4	$0.0	$31.4
1991	$30.0	$0.0	$30.0
1992	$26.2	$0.0	$26.2
1993	$26.8	$0.0	$26.8
1994	$27.8	$0.0	$27.8
1995	$30.5	$0.0	$30.5
1996	$33.1	$0.0	$33.1
1997	$35.6	$0.0	$35.6
1998	$38.6	$0.0	$38.6
1999	$41.4	$0.0	$41.4
2000	$39.4	$0.0	$39.4
2001	$37.0	$0.0	$37.0
2002	$38.6	$0.0	$38.6
TOTALS:	$473.5	$0.0	$473.5

High Production O&M Expenses

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1988	$4.2	$4.2	$0.0
1989	$4.3	$2.2	$2.1
1990	$4.5	$0.0	$4.5
1991	$4.7	$0.0	$4.7
1992	$3.9	$0.0	$3.9
1993	$4.1	$0.0	$4.1
1994	$4.3	$0.0	$4.3
1995	$4.5	$0.0	$4.5
1996	$4.7	$0.0	$4.7
1997	$2.0	$0.0	$2.0
1998	$2.1	$0.0	$2.1
1999	$2.2	$0.0	$2.2
2000	$0.0	$0.0	$0.0
2001	$0.0	$0.0	$0.0
2002	$0.0	$0.0	$0.0
TOTALS:	$45.5	$6.4	$39.1

Long Island Lighting Company
Comparison of Settlement With Shoreham In Service Scenario

(in 000,000's)

Operating and Maintenance Expenses
****

Life Extension O&M

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1988	$0.5	$0.5	$0.0
1989	$2.2	$2.2	$0.0
1990	$4.7	$4.7	$0.0
1991	$5.5	$5.5	$0.0
1992	$3.8	$3.8	$0.0
1993	$9.4	$9.4	$0.0
1994	$20.5	$20.5	$0.0
1995	$24.4	$24.4	$0.0
1996	$17.6	$17.6	$0.0
1997	$16.0	$16.0	$0.0
1998	$4.2	$4.2	$0.0
1999	$21.4	$21.4	$0.0
2000	$22.9	$22.9	$0.0
2001	$17.4	$17.4	$0.0
2002	$16.1	$16.1	$0.0
TOTALS:	$187.8	$187.8	$0.0

Training Center

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1988	$5.0	$5.0	$0.0
1989	$5.2	$5.2	$0.0
1990	$5.4	$5.4	$0.0
1991	$5.6	$5.6	$0.0
1992	$5.8	$5.8	$0.0
1993	$6.1	$6.1	$0.0
1994	$6.3	$6.3	$0.0
1995	$6.5	$6.5	$0.0
1996	$6.8	$6.8	$0.0
1997	$7.1	$7.1	$0.0
1998	$7.4	$7.4	$0.0
1999	$7.7	$7.7	$0.0
2000	$8.0	$8.0	$0.0
2001	$8.3	$8.3	$0.0
2002	$8.7	$8.7	$0.0
TOTALS:	$100.0	$100.0	$0.0

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Long Island Lighting Company
Comparison of Settlement With Shoreham In Service Scenario

(in 000,000's)

Operating and Maintenance Expenses

Combined Cycle 1, 2, 3, & 4 O&M Expenses

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1988	$0.0	$0.0	$0.0
1989	$0.0	$0.0	$0.0
1990	$0.0	$0.0	$0.0
1991	$0.0	$0.0	$0.0
1992	$0.0	$0.0	$0.0
1993	$0.0	$0.0	$0.0
1994	$0.0	$0.0	$0.0
1995	$0.0	$0.0	$0.0
1996	$0.0	$0.0	$0.0
1997	$11.4	$0.0	$11.4
1998	$11.9	$0.0	$11.9
1999	$24.7	$0.0	$24.7
2000	$25.7	$0.0	$25.7
2001	$40.0	$0.0	$40.0
2002	$41.6	$0.0	$41.6
TOTALS:	$155.3	$0.0	$155.3

Gas Turbines #1, #2, and #3 O&M Expenses

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1988	$0.0	$0.0	$0.0
1989	$1.2	$1.2	$0.0
1990	$2.4	$2.4	$0.0
1991	$2.5	$2.5	$0.0
1992	$2.6	$2.6	$0.0
1993	$2.7	$2.7	$0.0
1994	$2.8	$2.8	$0.0
1995	$2.9	$2.9	$0.0
1996	$3.0	$3.0	$0.0
1997	$3.2	$3.1	$0.1
1998	$3.3	$3.3	$0.0
1999	$3.4	$6.8	($3.4)
2000	$3.6	$7.0	($3.4)
2001	$3.7	$11.1	($7.4)
2002	$3.8	$11.4	($7.6)
TOTALS:	$41.1	$62.8	($21.7)

Long Island Lighting Company
Comparison of Settlement With Shoreham In Service Scenario

(In 000,000's)

Operating and Maintenance Expenses

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Shoreham O&M Expenses

YEAR	Settlement Agreement	Shoreham in Scenario	Difference
1988	$0.0	$0.0	$0.0
1989	$0.0	$68.5	($68.5)
1990	$0.0	$109.8	($109.8)
1991	$0.0	$110.2	($110.2)
1992	$0.0	$110.6	($110.6)
1993	$0.0	$110.9	($110.9)
1994	$0.0	$113.0	($113.0)
1995	$0.0	$115.1	($115.1)
1996	$0.0	$117.1	($117.1)
1997	$0.0	$119.3	($119.3)
1998	$0.0	$121.4	($121.4)
1999	$0.0	$123.5	($123.5)
2000	$0.0	$125.6	($125.6)
2001	$0.0	$127.7	($127.7)
2002	$0.0	$129.8	($129.8)
TOTALS:	$0.0	$1,602.5	($1,602.5)

Nine Mile O&M

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1988	$14.9	$14.9	$0.0
1989	$25.1	$25.1	$0.0
1990	$23.0	$23.0	$0.0
1991	$27.4	$27.4	$0.0
1992	$25.1	$25.1	$0.0
1993	$29.6	$29.6	$0.0
1994	$27.2	$27.2	$0.0
1995	$32.1	$32.1	$0.0
1996	$29.4	$29.4	$0.0
1997	$34.7	$34.7	$0.0
1998	$31.8	$31.8	$0.0
1999	$37.5	$37.5	$0.0
2000	$34.4	$34.4	$0.0
2001	$39.1	$39.1	$0.0
2002	$37.2	$37.2	$0.0
TOTALS:	$448.5	$448.5	$0.0

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Long Island Lighting Company
Comparison of Settlement With Shoreham In Service Scenario

(in 000,000's)

Operating and Maintenance Expenses

****

Base Electric Non Nuclear O&M

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1988	$250.0	$250.0	$0.0
1989	$266.8	$266.8	$0.0
1990	$277.2	$277.2	$0.0
1991	$288.0	$288.0	$0.0
1992	$299.3	$299.3	$0.0
1993	$311.0	$311.0	$0.0
1994	$323.1	$323.1	$0.0
1995	$335.8	$335.8	$0.0
1996	$342.1	$342.1	$0.0
1997	$355.8	$355.8	$0.0
1998	$370.1	$370.1	$0.0
1999	$384.9	$384.9	$0.0
2000	$400.3	$400.3	$0.0
2001	$416.3	$416.3	$0.0
2002	$432.9	$432.9	$0.0
TOTALS:	$5,053.6	$5,053.6	$0.0

Long Island Lighting Company
Comparison of Settlement With Shoreham In Service Scenario

(in 000,000's)

SUMMARY SHEET
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Total Property Taxes

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1988	$172.0	$172.0	$0.0
1989	$185.9	$218.5	($32.6)
1990	$196.2	$264.4	($68.2)
1991	$204.0	$273.0	($69.0)
1992	$212.2	$282.2	($70.0)
1993	$220.8	$291.8	($71.0)
1994	$229.6	$301.6	($72.0)
1995	$238.7	$311.7	($73.0)
1996	$248.2	$322.2	($74.0)
1997	$270.5	$333.3	($62.8)
1998	$281.3	$344.6	($63.3)
1999	$305.6	$365.0	($59.4)
2000	$317.9	$377.7	($59.8)
2001	$344.8	$400.0	($55.2)
2002	$358.6	$413.9	($55.3)
TOTALS:	$3,786.3	$4,671.9	($885.6)

Long Island Lighting Company
Comparison of Settlement With Shoreham In Service Scenario

(in 000,000's)

Property Taxes

Gas Turbines #1, #2 & #3

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1988	$0.0	$0.0	$0.0
1989	$3.2	$3.0	$0.2
1990	$6.2	$6.2	$0.0
1991	$6.4	$6.4	$0.0
1992	$6.7	$6.7	$0.0
1993	$7.0	$7.0	$0.0
1994	$7.3	$7.3	$0.0
1995	$7.5	$7.5	$0.0
1996	$7.8	$7.8	$0.0
1997	$8.2	$8.2	$0.0
1998	$8.5	$8.5	$0.0
1999	$8.8	$17.6	($8.8)
2000	$9.2	$18.4	($9.2)
2001	$9.5	$28.5	($19.0)
2002	$9.9	$29.7	($19.8)
TOTALS:	$106.2	$162.8	($56.6)

Combined Cycles #1, #2 & #3

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1988	$0.0	$0.0	$0.0
1989	$0.0	$0.0	$0.0
1990	$0.0	$0.0	$0.0
1991	$0.0	$0.0	$0.0
1992	$0.0	$0.0	$0.0
1993	$0.0	$0.0	$0.0
1994	$0.0	$0.0	$0.0
1995	$0.0	$0.0	$0.0
1996	$0.0	$0.0	$0.0
1997	$12.2	$0.0	$12.2
1998	$12.7	$0.0	$12.7
1999	$26.4	$0.0	$26.4
2000	$27.4	$0.0	$27.4
2001	$42.8	$0.0	$42.8
2002	$44.5	$0.0	$44.5
TOTALS:	$166.0	$0.0	$166.0

Long Island Lighting Company
Comparison of Settlement With Shoreham In Service Scenario

(in 000,000's)

Property Taxes

Shoreham

YEAR	Settlement Agreement *	Shoreham In Scenario	Difference
1988	$0.0	$0.0	$0.0
1989	$0.0	$32.8	($32.8)
1990	$0.0	$68.2	($68.2)
1991	$0.0	$69.0	($69.0)
1992	$0.0	$70.0	($70.0)
1993	$0.0	$71.0	($71.0)
1994	$0.0	$72.0	($72.0)
1995	$0.0	$73.0	($73.0)
1996	$0.0	$74.0	($74.0)
1997	$0.0	$75.0	($75.0)
1998	$0.0	$76.0	($76.0)
1999	$0.0	$77.0	($77.0)
2000	$0.0	$78.0	($78.0)
2001	$0.0	$79.0	($79.0)
2002	$0.0	$80.0	($80.0)
TOTALS:	$0.0	$995.0	($995.0)

* Property Taxes Were Capitalized Under Terms of the Settlement

Nine Mile Two

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1988	$1.2	$1.2	$0.0
1989	$5.1	$5.1	$0.0
1990	$5.3	$5.3	$0.0
1991	$5.5	$5.5	$0.0
1992	$5.7	$5.7	$0.0
1993	$6.0	$6.0	$0.0
1994	$6.2	$6.2	$0.0
1995	$6.5	$6.5	$0.0
1996	$6.7	$6.7	$0.0
1997	$7.0	$7.0	$0.0
1998	$7.3	$7.3	$0.0
1999	$7.5	$7.5	$0.0
2000	$7.9	$7.9	$0.0
2001	$8.2	$8.2	$0.0
2002	$8.5	$8.5	$0.0
TOTALS:	$94.6	$94.6	$0.0

Long-Island Lighting Company
Comparison of Settlement With Shoreham In Service Scenario

(in 000,000's)

Property Taxes

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Electric Non-Nuclear Non-Coal Non-Gas Turbines

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1988	$170.8	$170.8	$0.0
1989	$177.6	$177.6	$0.0
1990	$184.7	$184.7	$0.0
1991	$192.1	$192.1	$0.0
1992	$199.8	$199.8	$0.0
1993	$207.8	$207.8	$0.0
1994	$216.1	$216.1	$0.0
1995	$224.7	$224.7	$0.0
1996	$233.7	$233.7	$0.0
1997	$243.1	$243.1	$0.0
1998	$252.8	$252.8	$0.0
1999	$262.9	$262.9	$0.0
2000	$273.4	$273.4	$0.0
2001	$284.3	$284.3	$0.0
2002	$295.7	$295.7	$0.0
TOTALS:	$3,419.5	$3,419.5	$0.0

Long Island Lighting Company
Comparison of Settlement With Shoreham In Service Scenario

(in 000,000's)

TOTAL FUEL COSTS

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1988	$469.7	$469.6	$0.1
1989	$496.7	$443.1	$53.6
1990	$523.5	$422.2	$101.3
1991	$567.2	$493.1	$74.1
1992	$621.5	$521.7	$99.8
1993	$663.6	$555.2	$108.4
1994	$687.5	$585.0	$102.5
1995	$760.2	$648.7	$111.5
1996	$858.2	$726.9	$131.3
1997	$873.1	$773.3	$99.8
1998	$944.3	$794.8	$149.5
1999	$969.0	$850.0	$119.0
2000	$1,036.2	$914.3	$121.9
2001	$1,078.8	$989.0	$89.8
2002	$1,163.6	$1,054.2	$109.4
TOTALS:	$11,713.1	$10,241.1	$1,472.0

Long Island Lighting Company
Comparison of Settlement With Shoreham In Service Scenario

(in 000,000's)

SUMMARY SHEET

Other Taxes

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1989	$108.3	$108.4	($0.1)
1990	$100.4	$101.7	($1.3)
1991	$108.4	$111.3	($2.9)
1992	$114.8	$119.4	($4.6)
1993	$121.6	$128.1	($6.5)
1994	$128.9	$137.4	($8.5)
1995	$136.5	$147.4	($10.9)
1996	$144.8	$158.2	($13.4)
1997	$153.3	$169.6	($16.3)
1998	$162.5	$182.1	($19.6)
1999	$158.0	$175.3	($17.3)
2000	$161.7	$162.4	($0.7)
2001	$168.4	$169.5	($1.1)
2002	$173.6	$170.8	$2.8
TOTALS:	$1,941.2	$2,041.6	($100.4)

Long Island Lighting Company
Comparison of Settlement With Shoreham In Service Scenario

(in 000,000's)

Other Taxes

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Revenue Taxes

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1989	$84.2	$84.3	($0.1)
1990	$88.8	$90.0	($1.2)
1991	$94.5	$97.3	($2.8)
1992	$100.8	$105.4	($4.5)
1993	$107.7	$114.0	($6.4)
1994	$114.9	$123.3	($8.4)
1995	$122.3	$133.0	($10.7)
1996	$130.3	$143.5	($13.2)
1997	$138.8	$154.9	($16.2)
1998	$147.8	$167.2	($19.5)
1999	$142.9	$160.2	($17.3)
2000	$146.3	$147.0	($0.7)
2001	$152.7	$153.7	($1.0)
2002	$157.5	$154.7	$2.7
TOTALS:	$1,729.5	$1,828.7	($99.2)

Miscellaneous Taxes

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1989	$24.1	$24.1	($0.0)
1990	$11.6	$11.7	($0.1)
1991	$13.9	$14.0	($0.1)
1992	$14.0	$14.0	($0.1)
1993	$13.9	$14.1	($0.1)
1994	$14.0	$14.1	($0.1)
1995	$14.2	$14.4	($0.2)
1996	$14.5	$14.7	($0.2)
1997	$14.5	$14.7	($0.1)
1998	$14.7	$14.9	($0.1)
1999	$15.1	$15.1	($0.0)
2000	$15.4	$15.4	($0.0)
2001	$15.7	$15.8	($0.1)
2002	$16.1	$16.1	$0.1
TOTALS:	$211.7	$212.9	($1.2)

Long Island Lighting Company
Comparison of Settlement With Shoreham In Service Scenario

(in 000,000's)

Depreciation

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YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1989	$191.7	$149.5	$42.2
1990	$199.5	$203.1	($3.6)
1991	$206.3	$199.2	$7.1
1992	$213.1	$205.3	$7.8
1993	$219.0	$213.9	$5.1
1994	$224.8	$231.9	($7.1)
1995	$229.9	$238.7	($8.8)
1996	$234.7	$245.8	($11.1)
1997	$247.0	$252.8	($5.8)
1998	$251.4	$260.2	($8.8)
1999	$264.7	$272.4	($7.7)
2000	$269.8	$285.4	($15.6)
2001	$284.6	$298.9	($14.3)
2002	$290.2	$203.7	$86.5
TOTALS:	$3,326.7	$3,260.8	$65.9

RMP Amortization

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1989	($189.3)	($299.3)	$110.0
1990	($195.8)	($450.4)	$254.6
1991	($161.4)	($326.4)	$165.0
1992	($70.8)	($160.9)	$90.1
1993	($10.4)	($54.5)	$44.1
1994	$88.2	$59.8	$28.4
1995	$137.9	$169.8	($31.9)
1996	$206.4	$303.0	($96.6)
1997	$267.8	$459.3	($191.5)
1998	$312.9	$700.8	($387.9)
1999	$0.0	$415.0	($415.0)
2000	$0.0	$0.0	$0.0
2001	$0.0	$0.0	$0.0
2002	$0.0	$0.0	$0.0
TOTALS:	$385.5	$816.2	($430.7)

Long Island Lighting Company
Comparison of Settlement With Shoreham In Service Scenario

(in 000,000's)

Federal Income Taxes

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1989	$65.6	$135.3	($69.7)
1990	$83.4	$237.1	($153.7)
1991	$88.0	$203.3	($115.3)
1992	$79.5	$184.4	($104.9)
1993	$79.4	$201.9	($122.5)
1994	$76.3	$210.0	($133.7)
1995	$77.8	$211.0	($133.2)
1996	$76.4	$213.0	($136.6)
1997	$85.2	$211.7	($126.5)
1998	$146.8	$193.0	($46.2)
1999	$216.5	$194.9	$21.6
2000	$209.9	$212.0	($2.1)
2001	$206.9	$215.5	($8.6)
2002	$192.6	$222.8	($30.2)
TOTALS:	$1,684.3	$2,845.9	($1,161.6)

Interest

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1989	$422.7	$431.2	($8.5)
1990	$423.2	$458.8	($35.6)
1991	$437.8	$456.3	($18.5)
1992	$447.7	$469.0	($21.3)
1993	$455.9	$476.0	($20.1)
1994	$453.6	$462.3	($8.7)
1995	$446.0	$441.4	$4.6
1996	$440.7	$418.0	$22.7
1997	$443.2	$406.0	$37.2
1998	$438.4	$399.8	$38.6
1999	$435.3	$387.7	$47.6
2000	$432.9	$382.4	$50.5
2001	$428.2	$377.9	$50.3
2002	$428.1	$371.7	$56.4
TOTALS:	$6,133.7	$5,938.5	$195.2

Long Island Lighting Company
Comparison of Settlement With Shoreham In Service Scenario

(in 000,000's)

Preferred Dividends

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YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1989	$70.0	$70.0	$0.0
1990	$66.5	$71.9	($5.4)
1991	$61.5	$69.0	($7.5)
1992	$57.3	$65.9	($8.6)
1993	$53.4	$62.8	($9.4)
1994	$51.0	$59.6	($8.6)
1995	$49.7	$56.5	($6.8)
1996	$48.5	$53.4	($4.9)
1997	$47.1	$42.1	$5.0
1998	$46.3	$16.8	$29.5
1999	$45.7	$0.7	$45.0
2000	$45.1	$0.0	$45.1
2001	$44.5	$0.0	$44.5
2002	$44.0	$0.0	$44.0
TOTALS:	$730.6	$568.7	$161.9

Amount Available For Common

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1989	$205.8	$330.8	($125.0)
1990	$240.3	$319.3	($79.0)
1991	$249.7	$324.7	($75.0)
1992	$232.3	$310.4	($78.1)
1993	$236.2	$305.9	($69.7)
1994	$237.5	$314.6	($77.1)
1995	$239.6	$325.3	($85.7)
1996	$241.5	$333.9	($92.4)
1997	$242.5	$341.4	($98.9)
1998	$245.8	$338.1	($92.3)
1999	$249.7	$335.0	($85.3)
2000	$254.5	$344.4	($89.9)
2001	$259.1	$353.3	($94.2)
2002	$264.7	$361.8	($97.1)
TOTALS:	$3,399.2	$4,638.9	($1,239.7)

Long Island Lighting Company
Comparison of Settlement With Shoreham In Service Scenario

(in 000,000's)

SUMMARY SHEET

* * *

Capital Expenditures

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1988	$410.8	$442.0	($31.2)
1989	$266.4	$268.9	($2.5)
1990	$233.1	$202.6	$30.5
1991	$263.1	$255.4	$7.7
1992	$218.7	$220.0	($1.3)
1993	$209.6	$225.7	($16.1)
1994	$191.7	$225.8	($34.1)
1995	$264.8	$278.7	($13.9)
1996	$349.0	$240.7	$108.3
1997	$273.8	$289.4	($15.6)
1998	$353.2	$349.4	$3.8
1999	$294.5	$327.0	($32.5)
2000	$403.9	$364.7	$39.2
2001	$315.1	$363.4	($48.3)
2002	$428.3	$310.2	$118.1
TOTALS:	$4,476.0	$4,363.9	$112.1

Long Island Lighting Company
Comparison of Settlement With Shoreham In Service Scenario

(in 000,000's)

Capital Expenditures

Base Electric Non-Nuclear Capital

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1988	$113.9	$113.9	$0.0
1989	$102.9	$102.9	$0.0
1990	$107.6	$107.6	$0.0
1991	$118.2	$118.2	$0.0
1992	$96.2	$96.2	$0.0
1993	$100.0	$100.0	$0.0
1994	$104.0	$104.0	$0.0
1995	$108.2	$108.2	$0.0
1996	$112.5	$112.5	$0.0
1997	$117.0	$117.0	$0.0
1998	$121.7	$121.7	$0.0
1999	$126.6	$126.6	$0.0
2000	$131.7	$131.7	$0.0
2001	$136.9	$136.9	$0.0
2002	$142.4	$142.4	$0.0
TOTALS:	$1,739.8	$1,739.8	$0.0

Long Island Lighting Company
Comparison of Settlement With Shoreham In Service Scenario

(in 000,000's)

Capital Expenditures

Life Extension

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1988	$0.5	$0.5	$0.0
1989	$2.2	$2.2	$0.0
1990	$4.7	$4.7	$0.0
1991	$5.5	$5.5	$0.0
1992	$3.8	$3.8	$0.0
1993	$9.4	$9.4	$0.0
1994	$20.5	$20.5	$0.0
1995	$24.4	$24.4	$0.0
1996	$17.6	$17.6	$0.0
1997	$16.0	$16.0	$0.0
1998	$4.3	$4.3	$0.0
1999	$21.4	$21.4	$0.0
2000	$22.0	$22.0	$0.0
2001	$17.4	$17.4	$0.0
2002	$18.1	$18.1	$0.0
TOTALS:	$187.8	$187.8	$0.0

Shoreham Property Taxes

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1988	$60.0	$0.0	$60.0
1989	$54.0	$0.0	$54.0
1990	$48.0	$0.0	$48.0
1991	$42.0	$0.0	$42.0
1992	$36.0	$0.0	$36.0
1993	$30.0	$0.0	$30.0
1994	$24.0	$0.0	$24.0
1995	$18.0	$0.0	$18.0
1996	$12.0	$0.0	$12.0
1997	$6.0	$0.0	$6.0
1998	$0.0	$0.0	$0.0
1999	$0.0	$0.0	$0.0
2000	$0.0	$0.0	$0.0
2001	$0.0	$0.0	$0.0
2002	$0.0	$0.0	$0.0
TOTALS:	$330.0	$0.0	$330.0

Long Island Lighting Company
Comparison of Settlement With Shoreham In Service Scenario

(in 000,000's)

Capital Expenditures

Shoreham Retrofits and Decommissioning

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1988	$149.7	$243.3	($93.6)
1989	$54.6	$134.1	($79.5)
1990	$37.9	$79.1	($41.2)
1991	$71.4	$84.3	($12.9)
1992	$75.5	$76.7	($1.2)
1993	$46.0	$73.9	($27.9)
1994	$30.0	$75.3	($45.3)
1995	$0.0	$76.7	($76.7)
1996	$0.0	$78.1	($78.1)
1997	$0.0	$79.5	($79.5)
1998	$0.0	$80.8	($80.8)
1999	$0.0	$82.3	($82.3)
2000	$0.0	$83.7	($83.7)
2001	$0.0	$85.1	($85.1)
2002	$0.0	$86.5	($86.5)
TOTALS:	$465.1	$1,419.4	($954.3)

Shoreham Fuel

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1988	$0.0	$0.0	$0.0
1989	$0.0	$0.0	$0.0
1990	$0.0	$5.7	($5.7)
1991	$0.0	$25.6	($25.6)
1992	$0.0	$36.1	($36.1)
1993	$0.0	$18.2	($18.2)
1994	$0.0	$18.2	($18.2)
1995	$0.0	$43.2	($43.2)
1996	$0.0	$24.5	($24.5)
1997	$0.0	$24.5	($24.5)
1998	$0.0	$51.9	($51.9)
1999	$0.0	$27.5	($27.5)
2000	$0.0	$27.5	($27.5)
2001	$0.0	$58.4	($58.4)
2002	$0.0	$31.0	($31.0)
TOTALS:	$0.0	$392.3	($392.3)

Long Island Lighting Company
Comparison of Settlement With Shoreham In Service Scenario

(in 000,000's)

Capital Expenditures

Combined Cycle #1 #2 & #3 and Lines

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1988	$0.0	$0.0	$0.0
1989	$0.0	$0.0	$0.0
1990	$0.0	$0.0	$0.0
1991	$0.0	$0.0	$0.0
1992	$0.0	$0.0	$0.0
1993	$0.0	$0.0	$0.0
1994	$5.4	$0.0	$5.4
1995	$88.0	$0.0	$88.0
1996	$198.9	$0.0	$198.9
1997	$106.4	$0.0	$106.4
1998	$219.3	$0.0	$219.3
1999	$117.1	$0.0	$117.1
2000	$241.7	$0.0	$241.7
2001	$129.1	$0.0	$129.1
2002	$258.6	$0.0	$258.6
TOTALS:	$1,364.5	$0.0	$1,364.5

Gas Turbines #1 #2 & #3

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1988	$53.4	$53.4	$0.0
1989	$8.6	$8.6	$0.0
1990	$0.0	$0.0	$0.0
1991	$0.0	$0.0	$0.0
1992	$0.0	$0.0	$0.0
1993	$0.0	$0.0	$0.0
1994	$0.0	$0.0	$0.0
1995	$0.0	$0.0	$0.0
1996	$0.0	$0.0	$0.0
1997	$0.0	$24.0	($24.0)
1998	$0.0	$82.8	($82.8)
1999	$0.0	$39.8	($39.8)
2000	$0.0	$91.3	($91.3)
2001	$0.0	$14.7	($14.7)
2002	$0.0	$0.0	$0.0
TOTALS:	$62.0	$314.6	($252.6)

Long Island Lighting Company
Comparison of Settlement With Shoreham In Service Scenario

(in 000,000's)

Capital Expenditures

****

Nine Mile Plant And Retrofits

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1988	$30.6	$30.6	$0.0
1989	$9.2	$9.2	$0.0
1990	$5.5	$5.5	$0.0
1991	$10.1	$10.1	$0.0
1992	$6.2	$6.2	$0.0
1993	$10.9	$10.9	$0.0
1994	$6.7	$6.7	$0.0
1995	$11.8	$11.8	$0.0
1996	$7.3	$7.3	$0.0
1997	$12.7	$12.7	$0.0
1998	$7.9	$7.9	$0.0
1999	$13.8	$13.8	$0.0
2000	$8.5	$8.5	$0.0
2001	$14.9	$14.9	$0.0
2002	$9.2	$9.2	$0.0
TOTALS:	$165.3	$165.3	$0.0

Nine Mile Fuel

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1988	$0.0	$0.0	$0.0
1989	$11.9	$11.9	$0.0
1990	$0.0	$0.0	$0.0
1991	$11.7	$11.7	$0.0
1992	$0.0	$0.0	$0.0
1993	$12.3	$12.3	$0.0
1994	$0.0	$0.0	$0.0
1995	$13.3	$13.3	$0.0
1996	$0.0	$0.0	$0.0
1997	$14.4	$14.4	$0.0
1998	$0.0	$0.0	$0.0
1999	$15.6	$15.6	$0.0
2000	$0.0	$0.0	$0.0
2001	$16.8	$16.8	$0.0
2002	$0.0	$0.0	$0.0
TOTALS:	$96.0	$96.0	$0.0

Long Island Lighting Company
Comparison of Settlement With Shoreham In Service Scenario

(in 000,000's)

Capital Expenditures

****

Coal Unit

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1988	$0.0	$0.0	$0.0
1989	$0.0	$0.0	$0.0
1990	$0.0	$0.0	$0.0
1991	$0.0	$0.0	$0.0
1992	$0.0	$0.0	$0.0
1993	$0.0	$0.0	$0.0
1994	$0.0	$0.0	$0.0
1995	$0.0	$0.0	$0.0
1996	$0.0	$0.0	$0.0
1997	$0.0	$0.0	$0.0
1998	$0.0	$0.0	$0.0
1999	$0.0	$0.0	$0.0
2000	$0.0	$0.0	$0.0
2001	$0.0	$19.2	($19.2)
2002	$0.0	$23.0	($23.0)
TOTALS:	$0.0	$42.2	($42.2)

Long Island Lighting Company
Comparison of Settlement With Shoreham In Service Scenario

(in 000,000's)

Northport Capitalization

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1989	$2.7	$0.3	$2.4
1990	$23.0	$0.0	$23.0
1991	$29.4	$0.0	$29.4
1992	$4.2	$0.0	$4.2
1993	$1.0	$1.0	$0.0
1994	$1.0	$1.0	$0.0
1995	$1.1	$1.1	$0.0
1996	$1.1	$1.1	$0.0
1997	$0.7	$0.7	$0.0
1998	$1.3	$1.3	$0.0
1999	$0.0	$0.0	$0.0
2000	$0.0	$0.0	$0.0
2001	$0.0	$0.0	$0.0
2002	$0.0	$0.0	$0.0
TOTALS:	$65.5	$6.5	$59.0

Long Island Lighting Company
Comparison of Settlement With Shoreham In Service Scenario

(in 000,000's)

Capital Expenditures

****

Gas Firing

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
3	$0.0	$0.0	$0.0
1989	$19.0	$0.0	$19.0
1990	$19.1	$0.0	$19.1
1991	$0.0	$0.0	$0.0
1992	$0.0	$0.0	$0.0
1993	$0.0	$0.0	$0.0
1994	$0.0	$0.0	$0.0
1995	$0.0	$0.0	$0.0
1996	$0.0	$0.0	$0.0
1997	$0.0	$0.0	$0.0
1998	$0.0	$0.0	$0.0
1999	$0.0	$0.0	$0.0
2000	$0.0	$0.0	$0.0
2001	$0.0	$0.0	$0.0
2002	$0.0	$0.0	$0.0
TOTALS:	$38.1	$0.0	$38.1

Capaciter Program

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1988	$0.3	$0.3	$0.0
1989	$0.0	$0.0	$0.0
1990	$0.9	$0.0	$0.9
1991	$0.9	$0.0	$0.9
1992	$1.0	$1.0	$0.0
1993	$1.0	$1.0	$0.0
1994	$1.1	$1.1	$0.0
1995	$1.1	$1.1	$0.0
1996	$0.7	$0.7	$0.0
1997	$1.3	$1.3	$0.0
1998	$0.0	$0.0	$0.0
1999	$0.0	$0.0	$0.0
2000	$0.0	$0.0	$0.0
2001	$0.0	$0.0	$0.0
2002	$0.0	$0.0	$0.0
TOTALS:	$8.3	$6.5	$1.8

Long Island Lighting Company
Comparison of Settlement With Shoreham In Service Scenario

(in 000,000's)

Capital Expenditures

****

Force Cooling

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1988	$2.4	$0.0	$2.4
1989	$3.7	$0.0	$3.7
1990	$0.0	$0.0	$0.0
1991	$0.0	$0.0	$0.0
1992	$0.0	$0.0	$0.0
1993	$0.0	$0.0	$0.0
1994	$0.0	$0.0	$0.0
1995	$0.0	$0.0	$0.0
1996	$0.0	$0.0	$0.0
1997	$0.0	$0.0	$0.0
1998	$0.0	$0.0	$0.0
1999	$0.0	$0.0	$0.0
2000	$0.0	$0.0	$0.0
2001	$0.0	$0.0	$0.0
2002	$0.0	$0.0	$0.0
TOTALS:	$6.1	$0.0	$6.1

Northport Pilot Cable

YEAR	Settlement Agreement	Shoreham In Scenario	Difference
1988	$0.0	$0.0	$0.0
1989	$0.3	$0.0	$0.3
1990	$9.4	$0.0	$9.4
1991	$3.3	$0.0	$3.3
1992	$0.0	$0.0	$0.0
1993	$0.0	$0.0	$0.0
1994	$0.0	$0.0	$0.0
1995	$0.0	$0.0	$0.0
1996	$0.0	$0.0	$0.0
1997	$0.0	$0.0	$0.0
1998	$0.0	$0.0	$0.0
1999	$0.0	$0.0	$0.0
2000	$0.0	$0.0	$0.0
2001	$0.0	$0.0	$0.0
2002	$0.0	$0.0	$0.0
TOTALS:	$13.0	$0.0	$13.0

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

CASES 29484 and 88-E-084 - Long Island Lighting Company - Proposed Settlement on Shoreham and LILCO Ratemaking Issues.

STAFF'S INITIAL BRIEF SUPPORTING THE SETTLEMENT

RICHARD C. KING
Assistant Counsel

Dated: Albany, New York
August 9, 1988

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APPENDIX A..

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

CASES 29484 and 88-E-084 - Long Island Lighting Company - Proposed Settlement on Shoreham and LILCO Ratemaking Issues.

STAFF'S INITIAL BRIEF SUPPORTING THE SETTLEMENT

Introduction

Staff of the Department of Public Service submits this brief in support of the settlement agreement resolving the Shoreham controversy and ratemaking issues affecting Long Island Lighting Company (LILCO) and its customers.

The specific terms and purposes of the settlement agreement--as well as its important benefits--have been extensively described in the record of this case. Therefore, as recommended by Judge Frank S. Robinson, this brief will not describe its terms or repeat its benefits, but instead proceed directly to the issues that have arisen since the filing of the settlement with the Commission on June 23, 1988. For convenience, however, we have attached as Appendix A Staff's June 23 letter transmitting the settlement documents; it describes the terms and briefly discusses the advantages of the settlement.

It is important to note that, during the evidentiary phase of this proceeding, not one party opposed the settlement.[1] Therefore, in an effort to answer criticisms of the settlement, this brief will address issues beyond those raised in the evidentiary record, such as the comments at the public statement hearings and in media reports. Moreover, we shall attempt to anticipate concerns the Commission may have regarding the settlement.

This brief will address first what we believe are the major contested issues concerning the validity of the settlement, and then, more briefly, several discrete issues.

I. CONTESTED ISSUES

It is uncontroverted that any resolution of the Shoreham situation would result in upward pressure on rates. The fundamental question, therefore, is which outcome provides the greatest certainty with the least cost to ratepayers. The evidence points to the settlement scenario as vastly superior to any alternative under this standard.

We compare below the settlement to the various suggested alternatives. Again, we do not wish to belabor the significant advantages of the settlement, but we are compelled to mention some of them in this comparative analysis.

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[1] Suffolk County sponsored a witness who disputed some of the assumptions underlying the settlement and concluded that a public

-Continued-

A. Comparison With Alternatives

1. Settlement vs. LIPA takeover

Several persons have questioned whether a Long Island Power Authority (LIPA) takeover of LILCO would ultimately prove advantageous to ratepayers in comparison to the settlement. The general argument is that public power, with its access to low-cost, tax-free debt and avoidance of income taxes and profit payouts, is inherently cheaper than continuation of an investor-owned utility, and that LIPA should be no exception.

Perhaps the most revealing--if not the most important--response to this argument is that the LIPA Board of Directors, having received a report purporting to show relatively small ratepayer savings of a LIPA takeover vs. the settlement, voted in favor of the settlement (Tr. 329-331). Although the vote was split 6-3, the endorsement of the settlement was significant because the same LIPA Board had unanimously sought to acquire LILCO via a hostile takeover (Tr. 327). Thus, the logical public power entity to pursue a takeover, after painstaking and careful review, has voted in favor of the settlement.

More important, though less dramatic, is the fact that a LIPA takeover attempt would rekindle uncertainty and prolong any effective resolution of Shoreham issues. The settlement resolves

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-Continued-

power takeover would be more advantageous for ratepayers; but, despite urging from Judge Robinson (Tr. 943-44), the County refused to take a position on the settlement.

Shoreham's fate once and for all: the facility must be transferred to LIPA for closing and decommissioning and LILCO cannot operate Shoreham under any NRC license that may be issued prior to the closing of the transfer (Asset Transfer Agreement, Section 5; Tr. 890). And, the Commission's approval of a three-year package of rate increases will set the company on the path to financial recovery without severe ratepayer impacts.

In contrast, none of this is assured under a LIPA scenario. First, the Shoreham deadlock, which the Commission emphatically urged the parties to resolve,[1] would be prolonged, with LILCO pursuing licensing before the NRC and resisting the takeover attempts. This scenario could well present the Commission with the unenviable choice of granting rate increases to aid LILCO's struggle to open Shoreham and its fight against LIPA or of freezing rates and risking a utility bankruptcy.

One of the significant benefits of the settlement here is the resolution of litigation involving LIPA and the preservation of LIPA's role in future energy planning decisions (Settlement Agreement - LILCO Issues, ¶¶ 3,5 and 11; Asset Transfer Agreement). In contrast, LIPA's very existence is threatened in the LILCO v. Cuomo, et al. federal lawsuit and the LILCO et ano. v. Mack et al. and LILCO et ano. v. LIPA et al. state court lawsuits. A federal district court judge suggested that LILCO's "unconstitutional taking" argument was not yet ripe.[1] The case is currently on appeal to the Second Circuit Court of Appeals, which has requested updates of the settlement process. Thus, it is not at all clear that the LIPA scenario, in the final analysis, is legally viable.

---

[1] Case 29484, Opinion No. 87-26, Long Island Lighting Company - Rates, issued December 3, 1987, mimeo at 5.

The record also contains substantial evidence that rate impacts under the settlement are more favorable than under a LIPA scenario. (Tr. 487-492, 512-516, 886-892, 1067-70, 1151-53; Exh. 502). The fundamental problem confronting LIPA would be the unprecedented issuance of $8-9 billion of debt, by an entity with no track record, for the acquisition of LILCO stock, retirement of its debt, issuance expenses and other purposes (Tr. 890, 1068). This one-of-a-kind financing scheme could not be undertaken without a significant cost premium on the debt issuance and would undoubtedly have the pernicious effect of increasing the cost of other New York State and municipal debt issues (Tr. 889, 1152-53). Furthermore, the principal "advantage" of a public power takeover is tax avoidance, *i.e.*, the savings are in fact avoided taxes that will either be made up by other taxpayers or lead to diminished services (Tr. 887-88). The latest study performed by LIPA's consultants also included a $600 million contingency, as well it should, for the study did not address the potential federal tax liability due to the recapture of tax benefits (possibly totalling $1.0 billion) previously claimed by LILCO (Tr. 490-91, 890, 1069), potentially higher acquisition costs and other contingencies. Finally, the settlement identifies a flexible electric supply plan, including participation by NYPA, LILCO and independent power producers through a bidding process; in contrast, a LIPA scenario would entrust Long Island's precarious power supply problem to an unproven entity.

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[1] ______ F. Supp. 2d ______, Memorandum - Decision and Order of Howard G. Munson, C.J., issued August 4, 1987. Judge Munson also declared the "Used and Useful Law" (Public Service Law, § 66(24)) unconstitutional.

Suffolk County's evidentiary submission attempted to undermine these comparative rate impacts, but its effort, whose purpose remained elusive because of Suffolk's failure to take a position, was seriously flawed in concept and results. From a general perspective, Suffolk witness Talbot failed to note many of the benefits of the settlement, including the full disallowance of Bokum expenses, the capture of excess earnings, the certainty created by the agreement, and the termination of litigation that threatens both the Shoreham prudence disallowance and LIPA itself. (Tr. 1065-72).

Mr. Talbot's analysis also contained specific problems. He understated the "prudent" cost of Shoreham by $300 million (Tr. 1066,1134). The cost of LIPA borrowing was understated by 25-50 basis points and the effect of a huge LIPA issue on other State borrowings was ignored (Tr. 1152-53). Also, the capital structure used by Mr. Talbot did not reflect the financing plan agreed to by LILCO (Tr. 1070-71). A LIPA takeover price

$1.00-$2.00 below book value was assumed, despite the fact that utilities typically sell near book value and that a price premium is typically required to entice shareholders into a takeover (Tr. 1066). Mr. Talbot provided no documentation for the operating expense levels contained in his study even though, in some years, they were $900 million higher (or approximately 30%) than Staff's estimates (Tr. 1071-72, 1156). Finally, despite his admission (Tr. 1130-31) that uncertainty existed concerning the takeover price, the borrowing rate, and the possible recapture of tax benefits, Mr. Talbot eliminated the $600 million contingency contained in the June 1988 Lazard/LIPA study.

Overall, Suffolk's submission was a biased effort that selectively picked and chose numbers to obtain a pre-ordained outcome--i.e., that a LIPA takeover would be cheaper than the settlement. Its effort failed. Suffolk's presentation lacks credibility and should be rejected.

2. Settlement vs. LILCO bankruptcy

The evidentiary record is devoid of any support for a LILCO bankruptcy as a feasible alternative to the settlement. Perhaps the strongest statement about bankruptcy was the Long Island Association's claim that this alternative should be examined more carefully (Tr. 101-03). The LIA saw that "some features of the settlement plan might be improved in a bankruptcy scenario" (Tr. 102), a rather startling observation by a group comprising Long Island's business community.

As the Staff Panel testified, however, a utility bankruptcy turns the regulated utility model on its head (Tr. 885). Regulated industries are generally considered low-risk investments and their extremely capital-intensive requirements can be met with highly leveraged capital structures. A bankruptcy drives up the cost of a utility's capital, places upward pressure on utility rates, and erodes the utility's ability to meet its service obligations (Id.).

Moreover, a bankruptcy creates uncertainty concerning the exercise of jurisdiction over ratemaking, service and other issues by the Bankruptcy Court and the regulatory body (Tr. 886). In this context, it is certainly conceivable that a trustee in bankruptcy might seek to operate Shoreham as a means of preserving the utility's assets. Furthermore, a potential outcome may be a new regulatory structure that cedes to the Federal Energy Regulatory Commission primary responsibility over rates (Exh. 501, Exh. CPB-6). And, the bankruptcy scenario scuttles all of the certainty of resolution of the many difficult issues addressed in the settlement.

In direct response to LIA's suggestion, we think that any effort to assess the comparative costs of bankruptcy is doomed to failure because there are no recent utility case studies,[1] and cost effects and projected outcomes could only be based on sheer speculation (see, e.g. Tr. 884). Furthermore, in LILCO's last two rate cases the bankruptcy option was advanced, but rejected by the Commission.[1] There is no evidence suggesting a different result here; indeed the chaos and uncertainty resulting from a bankruptcy vis-a-vis the settlement compels rejection of bankruptcy as a viable alternative.

---

[1] The bankruptcy of Public Service Company of New Hampshire, the first major electric utility bankruptcy in 40 years, is still pending (Tr. 884).

3. Shoreham operation or mothballing

One possible alternative to the settlement is LILCO's operation of Shoreham or its temporary mothballing of the plant for eventual future use. The record, however, provides no basis for concluding that either of these highly speculative alternatives is preferable to the settlement.

First, as Staff's Panel testified, a "Shoreham-in" scenario would be subject to rapidly escalating nuclear operation and maintenance expenses, increasing (rather than decreasing) property taxes, higher decommissioning costs, "flat-line" fuel savings and very expensive post-operation capital additions (Tr. 891).[2] The Lazard Freres study, conducted on behalf of LIPA and carefully reviewed by the Staff Panel, showed rate increases of approximately 5.2% per year for 15 years, which are likely to be understated because of the 10-year (rather than 15-year) phase-in specified in the FSAB's Statement of Financial Accounting Standard 92 (SFAS-92).[1] (Id., Tr. 763). Indeed, LILCO's witness Madsen, while maintaining that operation of Shoreham would eventually become economic over its 40-year life, readily conceded that the settlement, in comparison with a Shoreham-in scenario, achieved demonstrable savings over the initial 10-year period (Tr. 758-760).

---

[1] Case 29029 - Long Island Lighting Company - Electric Rates, Opinion No. 86-1 (issued January 24, 1986) mimeo at 16-21; Opinion No. 86-26, supra, at 4-6.

[2] LILCO witness Madsen essentially confirmed these points (SM 770-771).

While perhaps a tempting proposition from a purely academic standpoint, the Shoreham-in scenario is riddled with uncertainty that undermines its viability. Although various witnesses attempted to speculate on the likelihood of Shoreham receiving a full operating license from the NRC and withstanding court challenge (see, e.g., 754-758), it is unassailable that Shoreham might never operate, might operate only after time-consuming legal battles and after the critical supply problem of the next two summers has passed (Tr. 758-759), or might become inoperable by virtue of further regulatory requirements (Tr. 891). These fundamental risks cannot be wished away! Mr. Madsen described the problem succinctly:

> But there are all sorts of uncertainties along the line when you multiply uncertainty by uncertainty... We see in the settlement much higher certainty which will allow us to provide a set of rates for our customers, at least in the short range. (Tr. 758).

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[1] In relevant part, SFAS-92 requires phase-ins of operating plants to be completed within 10 years.

Finally, one cannot underestimate the very tangible additional benefit of lower financing costs (Tr. 772-73) and the less tangible--but real--benefit of improved community/government relations (Tr. 759) under the settlement. As the Commission observed in Opinion No. 87-26 (pg. 5):

> ...[The Shoreham] deadlock and uncertainty have jeopardized the goal of electric utility regulation--the assurance of a reliable and reasonably priced power supply. The uncertainty raises costs, saps LILCO's financial resources, inhibits power supply planning, consumes the attention of top management, and poisons the company's relationship with its customers and the government that they elect. It is in no one's interest for this situation to continue.

Without doubt, the Shoreham-in scenario would prolong this situation and would completely ignore the Commission's clear message seeking to end the deadlock and uncertainty of Shoreham.

Finally, the intractable problems of the Shoreham-in scenario would confront the Commission, by late 1988 - early 1989, with the no-win alternatives of granting LILCO substantial rate relief to press ahead for a possible Shoreham opening or to deny relief and inevitably steer the company to bankruptcy. LILCO faces enormous financing and refunding requirements during this period (Settlement Agreement, App. A., Sch. 1, p.3; Tr. 775), and the Commission could not escape the Scylla-Charybdis choice offered. In contrast, the settlement presents an attractive blueprint for rate moderation, satisfaction of power supply needs and restoration of LILCO's financial health.

The mothballing alternative is really no alternative at all (Tr. 782-85; Exh. 507); indeed, it would be the worst of all worlds. Most capital additions and operation and maintenance expenses (except fuel) under the Shoreham-in scenario would still be required, but there would be no contribution to satisfy capacity needs.[1] At least three years would be needed to bring the facility on line, if and when such a decision is ever made (Id.). Mothballing would result in the hemorrhaging of money to continue Shoreham uncertainty and should be rejected.

4. Rejection and/or renegotiation of settlement

Aside from the fact that the record fully supports Commission endorsement of the settlement, there are additional reasons that make rejection and/or renegotiation unwise.

First, the Commission itself, in no uncertain terms, urged interested parties to break the Shoreham deadlock so that LILCO could better fulfill its public service responsibilities. (Opinion No. 87-26, pp. 5-8). Through intense, arms-length negotiations over several months, the parties developed a comprehensive settlement package that achieves the Commission's stated goal. Abandoning the settlement would frustrate this objective and would likely lead to one of the inferior results (bankruptcy, Shoreham operation, etc.) just described. In any event, the debilitating uncertainty that has characterized the LILCO situation for years would be resuscitated.

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[1] Further, no federal tax savings would be available until the plant either operated or was abandoned.

To eliminate this uncertainty as promptly as possible, the parties structured the agreement so that the Commission would approve it within 90 days. While we recognize this period is relatively brief for deciding issues of such obvious importance, these issues are known well by the Commission and the settlement proposal can be seen as a direct response to the guidance given in Opinion No. 87-26.

We strongly urge the Commission not to direct the parties to renegotiate any terms of the settlement. First, the overall settlement includes the welcome participation of entities (NYPA, LIPA, etc.) not generally subject to the Commission's jurisdiction who may not wish to participate in new negotiations. Second, inasmuch as the settlement provides a comprehensive solution to Shoreham and other outstanding LILCO problems, opening up negotiations would mean that previously resolved issues are back on the table. The parties have made many concessions in reaching the agreement and these concessions are ultimately contingent upon full acceptance of the settlement. Further, the Settlement Agreement (¶ 13) permits the parties to withdraw from the settlement and pursue their own positions if approval is not forthcoming within 90 days. There is precious little time to renegotiate substantive issues within this period (which ends September 21) and there is no assurance that the participants will all go back to the bargaining table.

For all of these reasons, the Commission should refrain from asking the parties to renegotiate the settlement.

* * *

In conclusion, the settlement provides the most reasonable basis for resolving Shoreham issues among the various alternatives.

B. Rate Impact On LILCO Customers

Before we discuss the rate moderation plan underlying the settlement, it is necessary to place the projected rate impacts in context because of the many public statements and published reports alleging severe and unacceptable rate increases.

First, there is no plan that can insulate ratepayers from upward pressure on rates. The Shoreham debacle--as well as the other costs of providing electricity on Long Island--will lead to higher rates no matter who the providing entity is or what alternative plan is devised. Understandably, no one likes this result, but it cannot be avoided.

Second, by any objective standard, the projected rate increases under the settlement, the LIPA scenario or a Shoreham-in scenario are not so wildly different that one approach can be said to be infinitely superior, whatever the future may bring. All of the projections incorporate numerous assumptions on such inherently unpredictable measures as fuel, inflation, capital costs and the like, and these forecasts may not pan out as projected. It is true that the record contains substantial evidence that rate increases will be lower under the settlement than any of the alternatives. But the real worth of the settlement is its certainty--certainty of resolving the Shoreham deadlock, certainty of rate mitigation measures and certainty of power supply planning. Thus, even if the numbers were to reverse, the settlement would still be the preferred alternative.

As for the rate increases under the settlement, the parties request that the Commission provide for increased rates, on a system average cents per kwh basis, including fuel, of 4.9% effective December 1, 1988, 5.0% effective October 1, 1989 and 5.0% effective October 1, 1990 (Settlement Agreement, ¶ 2(a); Tr. 853). Throughout this period, the Commission would retain the flexibility to tailor the rate increases among and within service classes as it sees fit (Tr. 721-24).[1] Thereafter, for the following seven years (October 1991 - 1998), Staff projects rate increases of approximately 4.75% (Tr. 855, Exh. 506, Staff Panel-2); these projections are targets and are not binding on the Commission. For the period 1999-2002, Staff projects level rates, with the cents/kwh cost of electricity actually declining from 18.14 in 1998 to 18.10 in 2002 (Tr. 874). Thus, for the 15 years analyzed, electric rates increase by approximately 3.5% per year (Tr. 876). If one incorporates the recent past (1984-88), during which rates declined by 2% on a nominal basis and 22% in real terms (i.e., accounting for inflation), the average annual electric increase for the 15-year period ending 1998 is 3.5% in nominal terms and -.50% in real terms (Tr. 875-76).

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[1] We urge the Commission to adhere to the rate design adopted in its Opinion and Order Concerning Rate Design, Opinion No. 88-3, issued January 25,1988, for the first year under the settlement.

Far from being a prescription for the bankruptcy of Long Island, the projected increases through the year 2002 are less than the assumed rate of inflation (4%) used in the studies (Tr. 876, Settlement, App. A, Sch. 1, p. 3). In other words, Staff projects a level of electric rate increases only slightly above the assumed increases in other goods and services for the first 10 years of the plan, and actually slightly below such increases for the overall 15-year period. Moreover, these projections assume fuel cost increases from 1992 onward that are 2% above inflation (Tr. 1069). And, Staff's studies include other conservative assumptions, such as LILCO construction of all new generating facilities, rather than NYPA construction with lower financing costs or a capacity bidding arrangement, and LILCO's resumption of full R&D spending levels (Tr. 1069; Settlement Agreement, App. A., Sch. 2, p. 1). Further, recent trends in electric sales suggest that the sales forecast underlying the settlement (Settlement Agreement, App. A, Sch. 1, p. 4) may be conservative, with the potential result that the margins obtained on higher than forecast sales would be available to further lessen the rate increases. The settlement also permits the Commission to determine the allocation of refunds or judgments obtained by the company through litigation, such as LILCO's property tax challenges and its claims against nuclear facility manufacturers (Settlement Agreement, ¶ 9). The equity cap and the 50 basis point "dead band" before it operates provide both the incentive for LILCO to maximize efficiencies as well as assurance for ratepayers that excess profits will be returned (Settlement Agreement ¶ 2(a)). Finally, the Commission, having accepted the settlement, will retain full discretion to set LILCO's revenue requirements as it deems necessary to temper rate impacts after September 1991.

Rate increases, of course, are never popular and, not surprisingly, the ones contemplated here are no exception. Nevertheless, the increases have been mitigated as much as reasonably possible, and the record evidence strongly suggests that they will not be materially different from general cost increases facing Long Islanders, absent some unforeseen and unpredictable event that would affect the non-settlement options as well. When one considers the other goals of utility regulation--long-term rate stability, assurance of adequate supply, effectiveness of management, introduction of efficiencies--the increases under the settlement are a small price to pay for ending the Shoreham deadlock and getting on with the business of providing effective utility service.

C. Alleged "Bailout" For LILCO

Some opponents of the settlement are particularly bothered by the features designed to restore the utility to reasonable financial health. For them, LILCO's intransigence on Shoreham would now be "rewarded" by "hefty" rate increases that will soon make the utility a "cash cow." They ask, quite rightly, whether LILCO will bear its fair share of the financial burden that the Shoreham debacle has created.

In urging the parties to resolve the Shoreham deadlock, the Commission, last December, recognized that LILCO could not be expected to negotiate itself into a financially destitute entity:

> Just as LILCO needs to re-evaluate its goals, it is important to realize that denying recovery of prudent Shoreham investment or some equivalent if the plant does not operate has the effect of forcing LILCO to continue its efforts to license the plant. LILCO will not abandon Shoreham if doing so precipitates its own demise. While it is too soon to commit ourselves to specific ratemaking treatment, the underlying need for principles that harmonize the company's economic self-interest with the desires of its customers must be recognized if the deadlock is to be broken in the context of our regulation of LILCO short of bankruptcy.[1]

Thus, the Commission clearly foresaw that, in any settlement negotiations that might ensue, LILCO would insist on some measure of financial recovery from its currently woeful position. The company has now agreed to abandon Shoreham, a project it pursued unswervingly for two decades and an asset it deems valuable. It should be no surprise to the Commission--and it should at least be understood by others--that the arms-length settlement provides LILCO the opportunity to regain its financial health within a reasonable time period. The settlement properly harmonizes the interests of ratepayers and the company by resolving the Shoreham question and permitting modest, short-term rate increases that place LILCO in a position to begin the journey to financial normalcy.

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[1] Opinion No. 87-26, p. 8.

Once a decision has been made to continue LILCO as a traditional investor-owned utility, it is important to understand that the company's return to financial normalcy is in the interest of both LILCO's ratepayers as well as its stockholders. A gradual financial recovery, which is anticipated in the settlement, will enable LILCO to realize large savings both from the refunding of existing high cost debt and from future borrowings at rates below those the company is now obliged to pay. Staff estimates that these savings, which will flow through to ratepayers, will amount to between $788 million - $1.36 billion (Exh. 506, Staff Panel-6).

The company's return to financial health will also help ensure its ability to provide utility service in keeping with the expectations of the community. No longer will necessary tree trimming and plant maintenance have to be deferred, or phones left unanswered, or plant construction and improvements delayed. These are critical elements of customer service that have been impaired in the past several years because of the company's precarious financial predicament. The settlement will provide sufficient funds for the restoration of good utility service. Improvement of the company's financial condition, therefore, is very much in the interest of LILCO's customers.

On a substantive basis, this settlement incorporates many features that are extremely difficult for the company to accept. For example, LILCO's forecasted financial parameters, at best, would return the company to an "A" bond rating by the mid-to late-1990's (Tr. 865-866). During the interim, LILCO will experience sub-par interest coverage and remain highly leveraged (Exh. 506, Staff Panel-2). This "A" rating level is a reasonable target since the Commission has previously found that an "A" rating is an appropriate goal for electric utilities.[1] Furthermore, although the settlement provides for LILCO's continuation as an investor-owned utility, the resulting financial parameters would not permit attainment of investment grade on its securities without other features of the settlement.

Contrary to the perceptions of some critics, the settlement does not place the burden of LILCO's imprudence on ratepayers; it properly assigns the burden to stockholders. As a result of the Commission imprudence determinations on Shoreham, Jamesport and Nine Mile 2 and the settlement's additional net write-off of approximately $326 million concerning Shoreham and Bokum (Settlement Agreement ¶ 2(b)), common shareholders have lost more than $1.5 billion ($13.50 per common share--about 40%) of their investment in LILCO. Furthermore, preferred shareholders, who have not received dividends since 1984 and must be paid in full before any common dividends are paid, will lose all interest on the dividends withheld. Finally, under the settlement, common shareholders will not have been paid any dividends for five years![1] With about 110,000,000 shares outstanding and a pre-1984 annual dividend of about $2.00, this amounts to over $1 billion of dividends missed, exclusive of the time value of money. Finally, the settlement also captures for ratepayers LILCO's $16 million of 1984 excess equity returns, imposes a cap on future equity returns, and requires implementation of management audit recommendations (Tr. 875, 877, 880).

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[1] Case 27679, Generic Financing Case, Opinion No. 82-22, issued October 18, 1982, pp. 9-10.

It is, of course, seductive to declaim that ratepayers will pay for LILCO imprudence through an alleged "bailout." The foregoing analysis, however, demonstrates that under the settlement the onus of imprudence rests squarely with LILCO's shareholders, not ratepayers. And, the long-term recovery of LILCO to financial normalcy is hardly a "bailout;" instead it is the best means to facilitate needed financing on favorable terms for the benefit of ratepayers.

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[1] LILCO last paid common dividends in February 1984 and under the settlement a reduced dividend would begin to be paid in the first quarter of 1989. (Settlement Agreement, ¶ 2(c)).

D. Financial Resource Asset

The settlement establishes a "Financial Resource Asset" (FRA) as the principal vehicle for restoring LILCO's financial health over an extended period time. The FRA creates definite benefits for both the public and LILCO's investors. More specifically, the certainty provided by the FRA reduces the return that investors require on the company's securities which, in turn, directly reduces the costs that LILCO's customers must bear to support the company's investor-provided capital.

The FRA has two components--the Base Resource Component (BRC) and the Rate Moderation Component (RMC). The BRC, which totals $3.656 billion, was established with reference to LILCO's current Financial Stability Adjustment (FSA) (Tr. 872-3).[1] The BRC is not related to the prudent Shoreham investment and is, in fact, $234 million less than the $3.9 billion "prudent" Shoreham cost.

The RMC represents the net of tax amount of deferred revenues generated by constraining LILCO's rate increases to 5% or less per year. The RMC is forecasted to peak at approximately $540 million in 1993 and will be reduced to $0 by the end of 1998 (Exh. 506, Staff Panel-2).

The FRA will not lead to significant future rate increases (Tr. 873-74). In fact, once the RMC is eliminated (probably, by 1998), the FRA becomes a decreasing element of

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[1] The BRC was calculated by first inflating the current net-of-tax FSA level by 4% over 40 years and then discounting the cash flow stream at 10% (Tr. 872-73).

LILCO's revenue requirement. For example, we estimate that, in 2002, well after the RMC is eliminated, the FRA requirements will represent approximately 10% of LILCO overall electric revenue requirements. In contrast, in 1989, the FRA represents approximately 22% of electric revenue requirements.[1] The relative impact of the FRA, of course, continues to decrease in future years (Tr. 874).

Thus, the FRA does not impose unreasonable revenue demands on LILCO customers and its impact dramatically lessens as time passes. The FRA does, however, enable LILCO to return gradually to financial normalcy, thereby reducing its financing costs and benefitting ratepayers.

E. Decommissioning

Under either the settlement or a LIPA takeover, the Shoreham plant will be decommissioned, which will require a substantial commitment of funds. The cost of this undertaking will be borne by ratepayers under the terms of the settlement or under a LIPA takeover. Under any no-Shoreham scenario except for mothballing, which is extremely costly in other respects, the decommissioning costs are unavoidable.[2] Reasonable estimates of the cost of decommissioning have been included in the settlement's projected rate increases. Staff included in its forecasts approximately $350 million for this expense over the 1988-1994 time period. (Settlement Agreement, App. A, Sch. 2, p. 3).

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[1] Staff's estimates are derived from our model runs which are presented in summary form Exh. 506, Staff Panel-3.

[2] Nor can they be assigned to LILCO's stockholders without destroying the viability of the settlement's financial recovery plan, which helps to keep rates as low as possible.

The settlement provides for decommissioning Shoreham, after it is transferred to LIPA, by NYPA or another state agency. NYPA will provide LILCO with annual budget projections of costs attributable to decommissioning. These budgets and monthly bills will be subject to PSC review and comment. This budget review process will provide regulatory input before major expenses are incurred and should operate as a reasonable check on decommissioning expenses.[1]

Because Shoreham will be the first large nuclear plant in the country to be decommissioned, the cost estimate is subject to more uncertainty than other expense projections. This concern led the parties to consider several actions, in addition to advance PSC cost review, to cushion the effect on ratepayers of an underestimate of decommissioning costs.

First, the rate impact of decommissioning costs will be tempered by capitalizing expenses and amortizing their recovery over a period of up to 40 years (Settlement Agreement, App. A, Sch. 1, p. 1). This accounting treatment will serve to moderate the impact on rates if the cost of decommissioning runs higher than expected.

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[1] Because NYPA is a public entity, all of the incurred costs must be recovered. There are no shareholders to absorb imprudent outlays.

Second, it is reasonable to expect that some of the funds anticipated to be spent for Research and Development expense can be allocated to decommissioning expenses. Staff projected LILCO's R&D expenses to return to "normal" levels, which are well above LILCO's current and recent R&D expenditure levels. If decommissioning expense runs higher than anticipated, some of these targeted R&D funds could be redirected to the decommissioniong program, in light of its relative importance to LILCO's ratepayers. Of course, since Shoreham will be decommissioned before any other large nuclear unit, some decommissioning work would properly be classified as "R&D" and thus supported by the R&D budget.

There is, in addition, good reason to believe that decommissioning costs can be offset to some degree by the salvage value of Shoreham components and by marketing to other nuclear utilities the expertise gained in the decommissioning process. Both of these opportunities will be aggressively pursued to ensure that a maximum contribution to offset decommissioning costs is realized.

Finally, the PSC, in addition to the pre-incurrence monitoring of expenses provided for in the settlement, also can modify the timing of LILCO's recovery of such expenses to the extent required to moderate the rate effects of higher than estimated costs.

In sum, we are confident that the settlement's treatment of decommissioning costs is reasonable in all respects.

F. Electric Supply

One of the most attractive features of the settlement is the creation of new opportunities for satisfying Long Island's vital electric supply needs.

First, the settlement explicitly provides for the participation by NYPA, the State's public authority with extensive experience in electric generation and transmission, in meeting capacity needs (Settlement Agreement, ¶11; Memorandum of Understanding Between NYPA and LILCO). If requested by LILCO, NYPA has agreed to construct two sets of gas turbines to supply near-term peaking needs and three baseload combined cycle units over the long-term planning horizon. The potential involvement of NYPA is a welcome enhancement of opportunities for satisfying Long Island's critical power needs.[1]

Second, under the Commission's recent order on capacity bidding,[2] the Commission established guidelines for electric utilities to employ all-source bidding to meet their capacity needs. LILCO's implementation plans must be filed by October 17, 1988, and, upon review and (if necessary) modification by the Commission, LILCO would commence the bidding process.

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[1] As the Commission is undoubtedly aware, Governor Cuomo has proposed legislation enabling NYPA to construct the facilities identified in the settlement, and the Settlement Agreement itself is conditioned upon approval by the Legislature (¶ 14(c)). As of this writing, the bill has not been passed by the Legislature.

[2] Case 29409, Opinion and Order Concerning Bidding, Avoided Cost Pricing, and Wheeling Issues, Opinion No. 88-15, issued June 3, 1988.

Therefore, with the possible exception of near-term peaking capacity (238 MW gas turbines - May 1989), new power sources -- including any NYPA-constructed plants--would be secured through the bidding process (Tr. 870-71). Together, the settlement and the bidding process will facilitate the development of the most efficient power sources.

Moreover, the settlement reflects the important role of independent power production, demand side management and energy conservation. Staff's forecasts reflect 350 MW of independent power production by 1997, and 200 MW coincident peak load reduction by 1992, with an additional 170 MW reduction by 2002, from aggressive conservation and DSM programs (Settlement Agreement, App. A, Sch. 1, p. 4). And, the 20 basis point adjustment to the equity cap for LILCO's development of such programs provides the incentive for the company to embark on this endeavor.

The above structure for satisfying Long Island's power needs is superior to the alternative of LILCO's pressing ahead on Shoreham, with all of that alternative's uncertainty, confusion and disruption. Aside from these fundamental problems, operation of Shoreham during its "immature" phase would not significantly alter Long Island's reliability problem. The facility would represent the largest single contingency on the system, and an unscheduled outage during peak periods would leave the system vulnerable to power cutbacks. Moreover, all of the parties agree that LILCO's near-term power needs (i.e., before completion of

NYPA's Sound Cable project in 1991-92) is for peaking capacity, rather than a baseload unit. Thus, the supply plan identified in the settlement is more suitably designed for LILCO's anticipated needs.

II. MISCELLANEOUS

A. RICO Lawsuit

Suffolk County and certain individuals have commenced an action against LILCO and some of its current and former officers under the federal Racketeer Influenced and Corrupt Organizations Act (18 U.S.C. § 1961 et seq.). The plaintiffs allege that LILCO fraudulently deceived the Commission and others in connection with Shoreham and Jamesport and, as a result, recovered illegally $2.9 billion in higher electric rates. The plaintiffs seek trebled ($8.7 billion) damages. The settlement does not purport to deal with the RICO lawsuit in any fashion.

Suffolk County has not taken a position on the settlement and its stance may be related to its position on the RICO lawsuit. The settlement could not dispose of the RICO lawsuit without Suffolk's support.

While the pendency of this action remains a problem for LILCO, it does not provide a basis for rejection of the settlement, because of the many other uncertainties the settlement resolves. Of course, we shall keep the Commission apprised of any significant developments in this litigation.

B. Tax Consequences

The settlement assumes that the IRS will recognize a tax loss deduction for the Shoreham plant abandonment in 1988 and that the resulting tax benefit allocable to ratepayers will be normalized over 10 years from the effectiveness of the agreement (Settlement Agreement, ¶ 2(b), App. A, Sch. 1, p. 1).

Staff and LILCO tax experts agree that there is nothing unusual or extraordinary about the tax treatment contemplated in the settlement and that there is a high probability that the treatment will be deemed permissible by the IRS (Tr. 881-82; Exh. 504). Since the plant will be abandoned, it can reasonably be assumed that the IRS will permit the deduction of the tax loss of the plant as an abandonment loss. Other utilities have deducted abandoned plant costs for tax purposes and received the full benefit of the deduction. (IRS Rev. Rul 87-117). The essential requirement is that the taxpayer must sustain a loss that is "not compensated for by insurance or otherwise." (26 U.S.C. § 165(a)).

Unique large industrial assets are periodically revalued in many industries. Plants are abandoned because of obsolescence, changing markets and other competitive conditions. The tax code provides for a reduction in taxes to account for such circumstances. Shoreham's abandonment is of this type and will be treated in the same way as an abandoned steel or automobile plant. There is no special tax law for LILCO and Shoreham. Indeed, it would be unreasonable to assume that the company would be singled out for special adverse tax treatment and not be allowed to reduce taxes by the loss in economic value of this asset, while other utilities and industries routinely claim and receive this tax benefit.

In the unlikely event that an adverse ruling is obtained, LILCO has agreed to share in the loss of the benefit by absorbing an appropriate part of the loss.[1] The agreement can be further modified or extended to account for any remaining benefit loss. It is expected that this adjustment would have only a minor effect on the target rate increases. It may be possible to handle this development by using any banked negative fuel adjustment revenues provided for in the settlement (Settlement Agreement, ¶ 2(b)) or by a modest extension of the time required to write down the Rate Moderation Component.

Finally, there are federal tax benefits associated with either Shoreham's operation or abandonment. If Shoreham operated, LILCO would be allowed to depreciate it for tax purposes. The company would take tax depreciation over 10 years as allowed by the IRS. If it does not operate, the tax benefit of the loss is used over an 8 to 9 year period, as assumed in the settlement. While there is some additional tax benefit associated with the abandonment versus the tax benefits of operation, the difference is not significant. Accordingly, early stories to the effect that federal taxpayers would bear the brunt of the cost of the abandonment are simply not true. The tax consequences of the two alternatives are roughly comparable.

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[1] Settlement Agreement, App. A, Sch 1, p. 1, fn. 1. A percentage consistent with the allocation of tax benefits between ratepayers and shareholders associated with the transfer of Shoreham assumed in the settlement.

C. Financial Incentive For Conservation

At the hearing on July 11, Chairman Bradford raised a concern about the financial incentive in the settlement that allows LILCO an opportunity to keep up to 20 basis points of earned return over the equity return cap if the company successfully implements an aggressive conservation/DSM plan (Tr. 694-700). The incentive would operate only if LILCO actually earns above the allowed return, which could occur as a result of expense reductions, productivity gains or higher than expected sales. It was designed to ensure LILCO's proper attention to conservation and DSM programs that might hold down demand growth in light of the implicit financial incentives LILCO has to increase sales and capture the 50 basis point spread between the allowed return and the return cap. The incentive is properly related to an achieved reduction in peak demand, as opposed to total sales, because the primary focus of LILCO's DSM and conservation efforts has been directed toward reducing peak load growth.

Chairman Bradford questioned whether this feature was desirable, especially if LILCO's conservation/DSM effort was very successful and total sales volumes did not grow as expected. The most probable result[1] would be a failure to earn the allowed return, in which case the financial incentive built into the settlement would not operate. The settlement's financial incentive does not include a provision responsive to the hypothetical posited by Chairman Bradford.

Nevertheless, sufficient latitude exists within the basic parameters of the incentive outlined in the settlement to accommodate the Chairman's concerns. Nothing in the agreement would prevent the Commission from adopting independently of the settlement a provision that would allow LILCO an opportunity to keep the 20 basis point adjustment (or some other financial reward) where sales volumes fell because of successful conservation and that development alone held the company's earned return below the level that would trigger the conservation incentive. There is also wide latitude contemplated in the settlement for Staff and LILCO to design a program that meets the company's needs and the Commission's concerns. If the Commission believes that the targets for a successful conservation/DSM program must be related to total sales rather than peak demand, it can instruct Staff to design the incentive program accordingly. These matters can be fully explored and a sound program developed in the 90-day period after the settlement agreement becomes effective.

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[1] Assuming that no extraordinary productivity gains or cost reductions offset the lower sales growth.

D. Approval Of Agreement By LILCO Shareholders

The effectiveness of the agreement is conditioned upon acceptance by LILCO's shareholders (Settlement Agreement, ¶ 14(c)). The Commission may extend the 90-day period for decision on the agreement for two weeks beyond LILCO's shareholder meeting if that meeting does not occur within 80 days of filing, or September 11 (Settlement Agreement, ¶13).

LILCO's shareholder meeting has been tentatively scheduled for mid-September; thus, the Commission will probably be able to extend its time for decision, without parties to the agreement being authorized to withdraw from the settlement, for two weeks beyond the shareholder meeting.

E. Commission Approval Under Public Service Law, § 70

The overall settlement includes the Asset Transfer Agreement, by which LILCO will transfer specifically defined Shoreham assets to LIPA for eventual decommissioning and dismantling. This transfer requires Commission approval under Public Service Law, § 70.

Staff has reviewed the Asset Transfer Agreement and urges Commission approval under § 70. The Agreement requires the transfer of only those assets of the Shoreham plant site that are needed to effectuate the closing and decommissioning of the plant. LILCO will retain ownership of certain Shoreham real property and facilties not related to decommissioning. And the Agreement sets forth the specific responsibilities of the parties to ensure efficient coordination in decommissioning. Finally, the Agreement includes the "standstill" agreement, which ensures that Shoreham will be closed and pending licenses withdrawn once the settlement is approved (Tr. 605).[1]

Accordingly, the Commission should specifically approve the Asset Transfer Agreement and the journal entries proposed by LILCO (Tr. 712-16; Exh 504), and require LILCO to file any additional documentation from the transfer closing.

F. Investment Grade Rating

A critical feature of the settlement is the restoration of LILCO's G&R debt to investment grade rating (Settlement Agreement, ¶ 8; Tr. 866-70). The investment grade rating would enable LILCO issue the significant amounts of debt projected at favorable rates, and the lower financing costs translate directly into ratepayers savings. (Id.) Thus, LILCO is required to provide adequate assurance within 45 days (August 8), unless waived by LILCO, that effectuation of the agreement will restore LILCO's securities to investment grade.

By letter dated August 8, 1988, LILCO advised the Commission and the parties that it does not yet have sufficient information, based on its discussions with the rating agencies

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[1] These provisions and LIPA's statutorily mandated inability to operate Shoreham provide full and complete assurance that Shoreham will never operate under the settlement, notwithstanding statements to the contrary by opponents of the settlement that have approved in press reports.

(Standard and Poors, Moody's and others), on whether it can provide such assurance. Thus, it has waived the requirement of providing adequate assurance of investment grade rating for a further 30 day period (September 10).

Staff supports LILCO's action and will advise the Commission promptly of our views with respect to any developments during this period.

G. L.I. Legislators Proposal

By letter to Chairman Bradford dated August 4, 1988, ten Long Island legislators urged rejection of the settlement and pursuit of a bankruptcy alternative, through Commission direction and voluntary action of LILCO and its creditors.

This proposal has been presented outside of the hearing process established for consideration of the settlement and alternatives. Hearings at which the settlement was carefully scrutinized in an open public forum have been completed. This proposal should have been filed at a time that would have allowed it to be subject to the same degree of analysis that the settlement underwent. That would have clearly demonstrated its deficiencies and its unworkability. Because it has received considerable media attention, we will point out its serious flaws.

While it is difficult to understand exactly what this proposal envisions, because it is not carefully presented, it appears to center around a PSC finding of insolvency which would trigger a voluntary process whereby LILCO's shareholders, bondholders, lenders and other creditors would get together to work out a financial solution to LILCO's problems. This alternative form of bankruptcy, however, is inappropriate in LILCO's current situation, even assuming one believes that a form of bankruptcy would be in the ratepayers' interest. Staff strongly disputes that premise, as discussed in Section I.A.2. above.

In order for the proferred alternative to advance, a finding of insolvency would have to be made. But it is by no means clear that LILCO's current financial condition can be so described. A proceeding to look into this matter would take a considerable length of time, further continuing the current unacceptable Shoreham uncertainty. Much of that inquiry would focus on the value of Shoreham, which in turn depends on its licenseability. The circularity of that effort should be readily apparent. It would go nowhere if pursued. The underlying reason for the settlement is to end the uncertainty over Shoreham. The proposed alternative requires a continuation of that uncertainty and a resolution of the question of Shoreham's viability before it can even proceed to the next step.

Assuming one got beyond that hurdle and it was determined that LILCO was insolvent, the proposal next depends on the willingness of LILCO and its creditors to "workout" a financial restructuring, possibly combined with a LIPA takeover. It envisions a consensual plan of reorganization, under PSC direction, and a LIPA takeover at an agreed upon stock acquisition price. It is highly unlikely that either LILCO or its creditors would agree to enter into such an agreement. LILCO would undoubtedly prefer to continue its attempt to license Shoreham, which it believes is a valuable asset. And LILCO's creditors would be better off under virtually any other alternative.

The LIPA takeover envisioned as part of this scheme is also unrealistic. If such a takeover could have been arranged at an agreed upon price acceptable to LILCO, and that alternative was shown to be cheaper than LILCO's continued operation, LIPA would have effectuated the plan. The plain fact is that it is not possible to accomplish a LIPA takeover at a favorable price with the certainty of ending the Shoreham deadlock. The settlement is the only feasible means of accomplishing that end.

The legislators suggest use of Section 119 of the Public Service Law as a vehicle for implementing their proposal. There are several problems with this approach. First, this statute was not designed to be used in a situation like LILCO's. As the Governor's Memorandum for this legislation plainly indicates, it was meant to cover a case where a corporation's assets are a mere fraction of its indebtedness and the stockholders have no interest in the corporation. The law also contemplates a full hearing and investigation to ascertain whether liabilities exceed assets and that a bankruptcy filing would be in the public interest. This would be a lengthy, contentious proceeding, and, as noted above, valuation of Shoreham would be particularly troublesome given its current status. Further, this statute has never been tested in the courts or even used for the purpose intended, raising serious questions about the wisdom of following this particular path.

The proposal also suggests that the Commission order LILCO to cease expenditures for the continued pursuit of Shoreham. This cannot be accomplished without a careful evaluation of the basis for the action which would have to be a determination that the cost implications of continuing pursuit of Shoreham threatened LILCO's ability to provide safe and adequate service at just and reasonable rates. That process would be time consuming and is unnecessary in any case because the settlement achieves the very same objectives: LILCO's cessation of licensing activities and the decommissioning of Shoreham.

The Commission can see the proposed alternative for what it really is -- a complicated, time-consuming procedure which has as its objective an unrealistic and unworkable voluntary LILCO bankruptcy. The bankruptcy option has been considered and rejected as too uncertain and potentially costly. It will not achieve certainty as to Shoreham's operation and could result in higher rates than under the settlement. The proposal should be rejected.

CONCLUSION

For the reasons stated above and in the record of this proceeding, Staff strongly recommends that the Commission approve the settlement as the best means to resolve Shoreham, mitigate rate impacts and ensure adequate power supplies.

Respectfully submitted,

Richard C King

RICHARD C. KING
Assistant Counsel

Dated: August 9, 1988
Albany, New York

Copies to all parties

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

OPINION NO. 89-8

Case 29484	- Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Long Island Lighting Company for Electric Service.
Case 88-E-084	- Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Long Island Lighting Company for Electric Service.

OPINION AND ORDER APPROVING AGREEMENT AND RATE PLAN

Issued and Effective: April 13, 1989

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APPENDIX

CONCURRENCE

DISSENT

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

APPEARANCES

FOR THE NEW YORK STATE DEPARTMENT OF PUBLIC SERVICE STAFF:

Richard C. King, Esq.
Three Empire State Plaza
Albany, NY 12223

FOR LONG ISLAND LIGHTING COMPANY:

Victor A. Staffieri, Esq.
Joy A. Johnson, Esq.
Robert Fernandez, Esq.
Richard Rapp, Esq.
175 E. Old Country Road
Hicksville, NY 11801

FOR THE NEW YORK STATE CONSUMER PROTECTION BOARD:

Joel Blau, Esq.
Alfred Levine, Esq.
99 Washington Avenue
Albany, NY 12210

FOR SUFFOLK COUNTY:

Hill, Betts & Nash
1 World Trade Center
New York, NY 10048
(by Gregory O'Neill, Esq. and
Kenneth L. Robinson, Esq.)

Alan R. Dynner, Esq.
Jonathan N. Eisenberg, Esq.
Kirkpatrick & Lockhart
South Lobby, 9th Floor
1800 M. Street, N. W.
Washington, D. C. 20036-5891

Robert Eye, Esq.
1347 1/2 Massachusetts St.
Lawrence, Kansas 66044

FOR IN-NOVO ENGINEERING AND DEVELOPMENT COMPANY:

Howard Rapaport
210-09 67th Avenue
Bayside, NY 11364

PRO SE:

Herbert Jaffe
57 Elinor Place
Freeport, NY 11520

FOR MULTIPLE INTERVENORS:

White, Brenner & Feigenbaum
One Steuben Place
Albany, NY 12201
(by Robert M. Loughney, Esq.)

FOR LONG ISLAND POWER AUTHORITY:

Stanley Klimberg, Executive Director
114 Old Country Road
Mineola, NY 11501

FOR THE NEW YORK STATE DEPARTMENT OF LAW:

Adrian Johnson, Esq.
Alfred Nardelli, Esq.
Room 3-120
120 Broadway
New York, NY 10271

FOR LONG ISLAND CITIZENS IN ACTION:

Marge Harrison
1845 Voshage Street
Baldwin, NY 11510

FOR SHOREHAM-WADING RIVER CENTRAL SCHOOL DISTRICT:

Lou Lewis, Esq.
Lewis & Greer, P.C.
Box 2990
Poughkeepsie, NY 12603

FOR 655 ASSOCIATES, INC.:

J. Kevin Murphy, Esq.
Suite 400
17 Barstow Road
Great Neck, NY 11021

FOR LONG ISLAND ASSOCIATION:

Gary Neil Sazer, Esq.
Parker, Chapin, Flattau & Klimpl
100 Jericho Quadrangle
Jericho, NY 11753

Mitchell H. Pally
Director
Long Island Association, Inc.
80 Hauppauge Road
Commack, Long Island, NY 11725

FOR GRUMMAN CORPORATION:

Charles Gilman, Esq.
Albert Robbins, Esq.
Eric Hellerman, Esq.
Cahill, Gordon & Reindel
Eighty Pine Street
New York, NY 10005

FOR PLAINTIFF CLASS (RICO LITIGATION):

Judith P. Vladeck, Esq.
Vladeck, Waldman, Elias
& Engelhard, P.C.
1501 Broadway
New York, New York 10036

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

COMMISSIONERS:

Peter Bradford, Chairman
Harold A. Jerry, Jr., concurring
Gail Garfield Schwartz
Eli M. Noam
James T. McFarland, dissenting
Edward M. Kresky
Henry G. Williams

Case 29484 - Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Long Island Lighting Company for Electric Service.

Case 88-E-084 - Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Long Island Lighting Company for Electric Service.

OPINION NO. 89-8

OPINION AND ORDER APPROVING AGREEMENT AND RATE PLAN

(Issued and Effective April 13, 1989)

BY THE COMMISSION:

INTRODUCTION

In Opinion 87-26 (December 3, 1987), we denied a rate increase request by Long Island Lighting Company (LILCO or the company), but invited the company to make an updated filing in April, 1988. On April 15, LILCO did so, seeking a $97.7 million revenue increase. In denying the rate request in Opinion 87-26 we had encouraged a resolution of the

Shoreham impasse. A settlement was signed in June 1988, and after hearings, we approved that settlement in Opinion 88-29 (November 18, 1988). Among other things, the settlement provided for Shoreham's dismantling and a series of rate increases beginning with 4.9% on December 1, 1988; but it lapsed for lack of legislative approval. LILCO thereupon asked that its still pending $97.7 million rate request be granted on a temporary basis. After conducting evidentiary hearings on this request, LILCO was authorized a temporary rate increase on February 16, 1989 in the amount it had requested, subject to certain conditions (see also Opinion 89-4, issued March 8, 1989).

On February 28, 1989, LILCO and Governor Cuomo signed a new agreement (February 28 Agreement), once again featuring Shoreham's dismantling, but this time with no explicit rate provisions, rates being instead left up to the Commission. This new agreement stipulates approval no later than April 15, 1989, by the Commission and LILCO's Board of Directors, among others.[1]

On March 6, we issued an Order establishing procedures for further proceedings in light of the February 28 Agreement. LILCO was directed to file, by

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[1] Also required is our approval under Public Service Law (PSL) § 70 of the Asset Transfer Agreement, an earlier version of which had been approved in Opinion 88-29.

March 10, a ratemaking proposal aimed at accomplishing its return to investment grade financial condition at the lowest reasonable rates, as per the February 28 Agreement; the rate determinations previously made in Opinion 88-29 were deemed an appropriate point of departure. Other parties were asked to file comments or responsive testimony by March 17, addressing, among other things, any changes in circumstances that might affect those previous determinations.

A public statement hearing on the agreement and rate proposals was held in Hauppauge before Chairman Peter A. Bradford, Commissioner James T. McFarland and Administrative Law Judge Frank S. Robinson on the evening of March 22, and an evidentiary hearing on the same matters was held on the following two days in Mineola. The record compiled at these hearings consists of 901 pages of transcript and 11 exhibits.[1]

The February 28 Agreement is supported by LILCO, staff, and the State Consumer Protection Board (CPB), and opposed by the Long Island Association (LIA), the Shoreham-Wading River School District, Grumman Corporation (Grumman), and 655 Associates, Inc.

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[1] By letter of March 28, counsel for 655 Associates, Inc. moved to place in evidence LILCO's March 15, 1989 prospectus for a $375 million bond issue. The document has been received in evidence as Exhibit 611.

LILCO, staff and CPB filed generally similar rate plans, and LILCO subsequently agreed to support staff's plan. Alternative rate arrangements were proposed Suffolk County.

Briefs were submitted on March 29 by LILCO, staff, CPB, Grumman, the Department of Law (DOL), In-Novo Engineering, Suffolk County, 655 Associates, Inc., LIA, and the Long Island Power Authority (LIPA).

On March 31, Chairman Bradford received a letter from Assemblymen Harenberg, Sweeney and Yevoli, which opposed the February 28 Agreement and the various rate plans, and proposed instead a restructuring of LILCO.

As might be expected, many points and arguments are repeated in the submissions and briefs of the various parties. We will of course endeavor to address all material points, but will not always expressly credit all the parties who made a given point.

PUBLIC STATEMENT HEARING

Thirty-two speakers made statements and five more entered written comments. The majority of the speakers opposed the agreement because they felt Shoreham should be allowed to open, in order to help relieve potential power supply deficiencies, to provide eventual economic benefits to ratepayers, and to avoid the reliability and environmental detriments to the extent fossil generation would have to supplant Shoreham's output. Eight speakers opposed Shoreham's opening, citing economic and safety concerns. Many of the speakers, both pro- and anti-Shoreham, considered the LILCO-staff rate plan too generous to the company.

THE AGREEMENT

Summary of Provisions

Under the terms of the February 28 Agreement, LILCO would transfer its Shoreham assets to LIPA for $1, and LIPA would contract for Shoreham's decommissioning by the New York Power Authority (NYPA).[1] LILCO has agreed that it will not operate Shoreham "provided that all approvals except shareowners' approval are received by April 15, 1989," and if that condition is met, it will not operate Shoreham unless the agreement is disapproved by shareowners.

The Agreement would terminate various court proceedings: LILCO v. Cuomo et al., LILCO v. PSC (and three other associated proceedings), LILCO et ano. v. Mack et al., and LILCO et ano. v. LIPA et al. The following Commission proceedings would also be terminated: Case 29029 (CPB petition under PSL § 66(20) concerning alleged LILCO excess earnings); Cases 28204 and 28704 (Bokum expenditures) and

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[1] As under the 1988 settlement, LILCO will have to reimburse NYPA for all decommissioning costs.

Case 29301 (Hurricane Gloria expenditures). Further, LILCO agrees to strive in good faith to resolve the RICO litigation and the Brookhaven tax litigation.[1]

LILCO also agrees to management audit provisions mirroring those in the prior settlement. Further, the prior settlement's power supply memorandum of understanding between LILCO and NYPA is incorporated by reference, and we are asked to expressly agree that, within three months of submission, we will review and act upon any proposal for the effectuation of a project covered by that memorandum. Finally, the State agrees to make available a sufficient share of its Industrial Development Bond volume cap to finance such projects, at a minimum of $100 million per year for five years.

While the new Agreement is silent on the subject, the parties apparently assumed that starting in 1989 LILCO would be making the payments in lieu of property taxes prescribed under the 1988 settlement.

Whereas the 1988 settlement contained a specific rate plan, this agreement says that the parties "anticipate that the PSC shall ensure that future impacts on subsequent rates are minimized to the maximum extent practicable and shall promptly determine just and reasonable rates for LILCO." The Agreement also states that "the parties intend that LILCO be returned to investment-grade financial condition as an investor-owned electric and gas corporation."

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[1] It is noted that on March 22, Federal District Court Judge Jack B. Weinstein approved a settlement of the RICO litigation, which requires the company to refund $390 million to customers over a 10-year period, beginning in June 1990 with $20 million and further annual payments ultimately increasing to $60 million annually. The parties intend that these LILCO outlays will not be reflected or recovered in any way in the ratemaking process.

LILCO stated on the record that its adherence to the February 28 Agreement is in fact contingent upon the Commission's adoption, by the April 15 deadline, of a rate plan acceptable to the company. LILCO stated that absent adoption of such a rate plan, it will not take action to obtain the approvals of its Board of Directors and stockholders which the agreement requires in order for it to become binding.

Finally, LILCO also acknowledged that it deemed itself bound by the relevant clarifications contained in Governor Cuomo's June 16, 1988 letter to LILCO concerning the 1988 settlement. In particular, the letter stated that "any salvage or sale value of Shoreham Assets (as defined in the Asset Transfer Agreement) which brings financial benefit to the company will inure directly to the ratepayers."

Parties' Arguments

Consideration of the Agreement is inextricably entwined with consideration of a rate plan, and indeed the parties have generally addressed the matter on that basis. For purposes of organizing this Opinion, however, the specific issues raised by the rate plans will be addressed separately, with arguments unrelated thereto considered first, directly below. A later discussion explains our approval of the February 28 Agreement and the staff rate plan, which LILCO agreed to.

1. LILCO

LILCO of course supports the Agreement, casting it, in light of the proposed rate plan, as essentially identical to the 1988 settlement, and argues for its adoption by reference to its prior arguments on behalf of the 1988 settlement.

2. Staff

Staff supports the new agreement, essentially resting upon its previous arguments in support of the 1988 settlement, and upon our approval thereof.

Staff does, though, answer those parties advocating Shoreham's operation as an alternative, contending that this would entail greater rate increases (at least for a decade), the financial risks of operating a nuclear plant, and the certain opposition by many other parties, all of which would make "breaking the Shoreham deadlock" impossible. Staff deems it no coincidence that none of the pro-Shoreham parties offered a rate plan.

Staff contends that Statement of Financial Accounting Standards 92 imposes a 10-year limit on the phase-in of a facility like Shoreham, whereas our Shoreham Ratemaking Principles decision, which established a rate moderation plan for the eventuality of Shoreham's operation, called for a 15-year phase-in.[1] Staff says that the more compressed time frame for phasing in the capital cost would increase rates in comparison with the settlement alternative. Secondly, staff points to a recent NRC directive requiring an "external" funding method, instead of "internal" funding (as employed by New York utilities), for decommissioning accruals, in order to provide greater assurance that the funds will be available at the time of decommissioning. Staff believes that this will increase costs for a "Shoreham-in scenario."

Staff also addressed a suggested scenario in which NYPA acquires Shoreham and operates it. Staff finds this devoid of record support, and suffering from several additional problems: it would require the Legislature to pass, and the Governor to sign, enabling legislation, which staff considers highly unlikely; it would require an unprecedented issuance of debt securities by the state, driving up costs; without Federal legislation, such debt would not be tax-exempt; and NYPA would probably be subject to investment tax credit (ITC) recapture and be unable to use future ITC credits.

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[1] Case 28252, Opinion 86-14 (issued June 12, 1986).

3. CPB

CPB urges approval of the Agreement, as achieving all five basic goals established by the Governor for resolving the Shoreham controversy and meeting Long Island's energy needs: guaranteeing Shoreham's dismantlement; ensuring the lowest possible rates; providing a safe and adequate power supply; ensuring a continuing LIPA role; and improving LILCO's management.

The Board notes that earlier in this proceeding, we compared the 1988 settlement with various alternatives, including Shoreham's opening, a LIPA takeover and a LILCO bankruptcy/reorganization; and after a comprehensive review concluded that no alternative offers a reasonable prospect of lower rates or better power supply planning. CPB asserts the same for the new agreement.

As for power supply, Board witness Kessel said that the Commission and LILCO have both concluded that energy needs can be met without Shoreham, with no new base load capacity being needed until the summer of 1998 when a 300 MW combined cycle unit is to be installed.

On brief, CPB disputes the positions of various parties that opening Shoreham would be preferable, arguing that the plant would present a safety threat because of evacuation problems, that its operation is not necessary to assure a reliable power supply, and that it would be uneconomic -- generally relying on CPB's arguments and the record concerning the 1988 settlement. CPB points to various rate studies, and to company witness Madsen's concession that rates with Shoreham operating would be higher at least for the first ten years.

4. 655 Associates, Inc.

655 Associates, Inc. (655), a new party to this case, considers the agreement contrary to law and the public interest, and unfair to ratepayers. The intervenor argues that the Governor has no authority to settle various lawsuits as the agreement purports to do,[1] that there are other

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[1] 655 deems the agreement unenforceable because only the Attorney General has authority to enter into such stipulations, and further says that the Commission, rather than the Governor, has the authority to stipulate settlement of the administrative proceedings in question.

parties to those lawsuits, and that the agreement violates the Public Authorities Law provisions creating LIPA, which, 655 says, authorize LIPA only to replace LILCO by purchasing its assets, and requires LIPA to proceed only after determining that resulting rates would be lower than otherwise.

Furthermore, the agreement is attacked by 655 as ignoring Long Island's critical energy shortage, the prospect of brownouts and blackouts, and the negative economic impact they would have. The intervenor cites, on brief, testimony by LILCO witness Madsen opining that to open Shoreham would be the best energy policy, and that Long Island might suffer four to six brownouts this summer without Shoreham.

655 further objects that only the NRC has the primary authority to transfer Shoreham, so that this agreement is premature and cannot effect the plant's transfer to LIPA; the intervenor deems it pure speculation as to whether the NRC would authorize that.[1] A further claim is that NYPA lacks authority to build base load plants in the service area.

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[1] On brief, 655 adds an argument that there was no evidence from LIPA, or otherwise, in support of LIPA's having the expertise to handle a nuclear power plant. (However, it is clear that nonesuch is required since LIPA will only be contracting for the plant's decommissioning.) 655 also contends that $1 is insufficient compensation to ratepayers for a plant it deems worth several billion dollars.

The Shoreham-Wading River School District supports 655's position.

Staff rejects 655's arguments as failing to recognize LIPA's broad statutory authority; staff says that LIPA is authorized to acquire any part of LILCO's assets, thereby enabling it to acquire Shoreham alone. As for there being parties, other than LILCO and the Governor, to the lawsuits which the agreement would settle, staff points out that the other parties in question are required to accept the agreement in order for it to become effective. CPB makes similar arguments. Concerning the role of the Nuclear Regulatory Commission (NRC), invoked by 655, staff says that obviously any plan to decommission Shoreham is subject to NRC approval, but staff sees no flaws in the agreement that might cause the NRC to reject it.

LIPA also briefed in depth 655's claim that LIPA is not authorized to do what the agreement contemplates, arguing (like staff) that in fact LIPA is authorized to acquire any of LILCO's assets and is not limited to conducting a total takeover. LIPA also says that it did make the requisite favorable comparative rate determination on June 22, 1988, and expects to make a new one before approving the February 28 agreement.

655's claim that the agreement is contrary to law has no merit. Its arguments are adequately answered by staff and LIPA itself, as recapitulated above.[1] As to the Governor's power to settle lawsuits, he is the state's chief executive officer and thus has authority over some of the state agencies involved in these lawsuits; in any event, as pointed out, the question seems academic because we and the other parties to the lawsuits themselves must also ratify the Agreement.

It is true that Shoreham cannot be transferred to LIPA without NRC approval. But this of course is no reason to defer action. As in the case of the 1988 settlement, there are conceivable future contingencies which could frustrate the instant agreement -- such as a lack of shareholder approval, to name one -- and all we can do is to fulfill our own responsibilities.

5. Shoreham-Wading River Central School District

School District witness Keith objected to the agreement as failing to adequately deal with future capacity requirements; containing no mention of the procedures or estimated cost for decommissioning Shoreham; no specification as to the ultimate ratemaking procedures; and no mention of the accounting treatment for rate base associated with Shoreham.

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[1] The contention that NYPA lacks authority to build baseload plants for LILCO is similarly flawed. (Public Authorities Law, § 1005).

Mr. Keith contended that Shoreham is a major electric generation plant, designed by Stone & Webster, conforming to the highest industry and regulatory standards. He cited various points of evidence that Shoreham was in fact well constructed and is safe. He deemed it beyond comprehension that such a plant would be sold by the company for $1.

Mr. Keith also said that Shoreham was intended to satisfy electric capacity requirements; he noted that LILCO's "fallback position" was the installation of over 500 megawatts of gas turbines in the Town of Babylon, which has rejected the construction permit.

Mr. Keith further raised concerns about the uncertainty of Shoreham's tax treatment; the novelty of allowing LILCO to earn a return on a plant that it no longer owns and which serves no useful purpose; and the cost of replacement capacity and energy.

CPB responds correctly that the record shows LILCO should be able to meet its forecast loads without Shoreham; that it shows the decommissioning estimate to be reasonable; that there is no issue concerning the accounting treatment for rate base associated with Shoreham because the plant will no longer be LILCO's; that the gas turbines originally proposed for Babylon are being built in Brookhaven; and that the IRS has issued a ruling allowing the Shoreham loss to be deducted.

6. Long Island Association

The Long Island Association castigates the new agreement as essentially the same as last year's, and complains that if a rate plan is adopted along the lines contemplated, LILCO will become a "cash-rich utility," according to an unnamed Wall Street firm. LIA complains that the Commission is acting solely in the belief that Shoreham's closure is the ultimate policy objective, without ever having presented this issue to a fact-finding proceeding. Rather, says LIA, this Commission, like the political process, "seems to be operating at another level -- a level on which it presumes to know the public mind but has not [formally] presented the question to the people of Long Island." LIA says that proponents of closing Shoreham have not met their burden of proof that the economic consequences of this can be made manageable, and have failed to develop a viable program for additional capacity in the region.

LIA also complains about what it considers to have been a hasty proceeding, arguing that this settlement plan will affect Long Island for generations. LIA objects that the April 15 deadline is an arbitrary and artificial one established by the Governor and LILCO, with no other parties having agreed to it.

On brief,[1] LIA says that it has been deeply concerned about the cloud of uncertainty hanging over Long Island's electric supply, the resulting economic impacts, and the prolonged preoccupation of governmental and political processes with the issue; for these reasons, says LIA, it has long urged a negotiated settlement. But unfortunately, LIA feels, the result of the negotiations here has been "the wrong kind of certainty." LIA criticizes the sheer amount of added revenue LILCO will receive under the rate plans proferred here, and deems it inappropriate to reward common stockholders, with dividends, for abandoning a completed generating plant. LIA specifically criticizes the notion of payments in lieu of taxes totalling $330 million, which it sees as a subsidy by one part of the Island for the benefit of another.

LIA makes the following further points: the lack of final resolution of the property tax and RICO litigation significantly clouds any rate plan; the cost of adding new base load capacity may be significantly understated, and siting these plants may be impossible; there is no option to refuse NYPA power if it is too costly; mothballing has never been objectively considered; and LIA suspects that the benefit of Shoreham's tax write-off is now inuring to shareholders.

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[1] LIA submitted two briefs: one of them consisting of its statement at the public statement hearing, the other based largely upon it.

LIA concludes that the "settlement plan is a plan to close Shoreham, with all other issues of cost, supply, reliability and economic impact treated as subordinate or secondary." LIA makes the following specific recommendations:

1) The State, LILCO and NYPA should present a siting plan for projected new base load plants.

2) The Commission should take no irreversible action until the NRC renders its decision on a Shoreham license.

3) The costs of the settlement should be redistributed by deferring or reducing the payment of dividends to preferred and common stockholders; reductions in the gross receipts and other state taxes; issuing common stock to ratepayers in lieu of rate reductions under the RICO settlement; and by increasing the tax exempt financing available to LILCO.

4) All tax certiorari cases should be resolved before a rate plan is approved.

5) The rate plan should be modified to allow ratepayers to take advantage of any downward trend in the fuel adjustment clause, and requiring LILCO and NYPA to share any additional costs relating to the provision of future power.

6) The time for final action on the settlement and related rate plan should be extended.

7) There should be public referendum on Shoreham and the settlement plan.

CPB replies by pointing to LIA's statement that the new rate plan is essentially identical to the 1988 settlement, so that LIA has effectively had nine months to review it. As to the referendum idea, CPB cites a Newsday poll showing 71% of Long Islanders want Shoreham closed. CPB also denies that this is a "gold plated settlement" for LILCO, pointing to coverages well below Commission standards, and the unprecedented losses LILCO shareholders have absorbed in the last five years.

7. Grumman

Grumman criticizes the Agreement because it believes that the Agreement fails to resolve the paramount question of how to ensure a safe, reliable source of power on Long Island at reasonable, competitive rates. Grumman suggests that Shoreham not be dismantled, but rather mothballed so that it could be recommissioned in the event that it is ever needed to meet future energy requirements on Long Island. Grumman says that if a physical asset that may be used in the future to satisfy a need exists, it is irrational to destroy it.

PROPOSED RATE PLANS

As explained, LILCO's rate proposal was modified by staff in a manner which LILCO has agreed to support. Grumman, DOL, LIA and 655 opposed the plan; CPB and Suffolk offered alternate proposals.

Company-Staff Proposal

LILCO originally offered a rate proposal which it characterized as consistent with the 1988 settlement, approved in Opinion 88-29. Specifically, LILCO proposed that the 5.4% temporary rate increase, approved in February, be made permanent (in place of the old settlement's 4.9% increase slated for December 1, 1988); and, as per the 1988 settlement, there would be 5.0% rate increases effective October 1, 1989 and October 1, 1990.

As to rate increases beyond that point, LILCO's plan, like the earlier settlement, contained only non-binding projections. However, future rate levels would be heavily affected by the insertion onto LILCO's balance sheet of the "Base Financial Component" (BFC) of the "Financial Resource Asset," tantamount to a rate base addition whose amount is close to but below the value of Shoreham's prudent cost, updated appropriately in LILCO's proposal. The BFC in the 1988 settlement was $3.656 billion, to be escalated at a 10%

annual rate up to the point of booking. Assuming now it is booked in June 1989, it would be approximately $4.0 billion. Total Shoreham costs, including those previously disallowed, and additional amounts that will go unrecovered here, will be approximately $5.6 billion as of June, 1989.

The BFC is offset by the "Rate Moderation Component" or RMC; this is a mechanism by which, during the early years, LILCO would defer a portion of the revenue requirements that would otherwise be generated by the BFC. Those deferrals would be reversed in later years and collected from ratepayers, with the deferred account being closed out in the tenth year.

It is important to note that LILCO's rate proposal did not reflect the effects of the settlement between the company and the class of ratepayers in the RICO litigation. LILCO had pledged not to seek ratemaking recovery of those outlays, so that the returns on equity, interest coverages, and overall levels of financial integrity are now projected to be lower than under the 1988 settlement.[1]

The plan permits LILCO, at its discretion, to resume common stock dividends at $1.00 per share in the third quarter of 1989, rising to $2.00 per share two years later. The preferred stock dividend arrearage would be paid up in the third quarter of 1989, whereupon regular preferred dividends would resume.

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[1] Coverages are now projected at 1.2 to 1.3, and 1.3 to 1.4 times in 1989 and 1990-91 respectively, instead of 1.3 to 1.4 in 1989-90 and 1.4 to 1.5 times in 1991 projected for the 1988 settlement.

As noted, staff proposed some modifications to LILCO's plan, which the company has agreed to support.

First, in place of the October 1, 1989 and 1990 rate increase dates in LILCO's plan, staff proposed dates of December 1, 1989 and 1990, in order to retain the original ten month interval between the first two rate increases (the first having been, of course, delayed from December to February).

Secondly, in staff's plan, the parties are required "to develop, and present for PSC consideration and approval, not later than May 15, 1989 ... a Demand Side Management incentive program designed to avoid the negative impact on cash flow caused by the successful implementation of LILCO's Demand Side Management/Conservation Program (DSM). The mechanism will be structured to eliminate the disincentive to promote conservation due to revenue erosion."[1]

Thirdly, staff's plan eliminates a provision in LILCO's proposal which would have allowed the company to withdraw from the agreement, even after its shareholders have approved it, if the company does not receive an investment grade rating.

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[1] The company, on March 24, submitted a detailed DSM incentive plan.

In staff's plan, rate increases would be 5.0% in December 1989, 5.0% in December 1990, and projected at 4.6% annually through 1999.[1]

Staff says that its plan would mean substantially improving financial parameters over the rate moderation period; and staff asserted that, considering LILCO's minimal construction risk, the company should be able to obtain an A bond rating by the mid to late 1990's.

The LILCO-staff plan also contemplates a fuel adjustment clause modification that would enable the company to recover some capacity charges to be incurred in meeting summer 1989-90 short-term capacity needs, which are not accounted for in the existing FAC.

On brief, staff strongly urges that we adopt a rate plan by April 15, saying that only if this is done will LILCO be bound not to operate Shoreham. Staff notes that the agreement requires approval by LILCO shareholders, and deems it imperative to fix a rate plan promptly so that LILCO may proceed to get that approval. Further, says staff, its plan (and for that matter, CPB's) departs only modestly from the plan approved in Opinion 88-29, so there is no need for relitigation of the essential merits.

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[1] These percentages do not reflect the RICO payments to customers, which staff estimated would bring the actual net 1989 rate increase down to 4.3%. (The 1990 increase would remain at 5.0% because the payments to customers would not change between 1990 and 1991.)

Staff urges us to resist any temptation to approve only a conceptual plan while postponing resolution of some of the issues. Staff says that such would be inconsistent with the February 28 Agreement -- because while its terms do not specifically require establishment of rates by April 15, failure to adopt a specific rate plan would place LILCO's "standstill agreement" on Shoreham in limbo, since LILCO's Board must also approve the agreement and cannot be expected to do so without a rate plan. Staff adds that LILCO's shareholders would not likely approve a rate plan whose specific terms would be subject to prospective litigation in a Commission proceeding, and says that it would not be possible for LIPA to make its statutorily required comparative rate finding in connection with its required approval. Staff also says that attainment of an investment grade bond rating would be jeopardized because the rating agencies want assurance that a rate plan will in fact be implemented.

Staff meanwhile says that any rate plan should be subject to several conditions. First, it should be contingent on the other approvals required in the February 28

Agreement (because a "Shoreham-in" scenario would raise many other issues, necessitating different ratemaking considerations). Secondly, staff points out that the fuel cost modifications will require an adjustment in base rates and implementation of new fuel cost adjustment riders (and hence the filing of revised tariff pages and review thereof prior to their effect on a permanent basis). Thirdly, staff points out that the rate plan should be contingent on filing of an amended Asset Transfer Agreement.[1]

Finally, staff comments generally about the objections raised by other parties, to the effect "that insufficient punishment has been meted out to LILCO shareholders." Staff considers this notion contradicted by the record evidence, but adds that these parties' recommendations (see infra) would hamstring LILCO's financial recovery, prolong needless uncertainty and litigation, and ultimately harm ratepayers. Staff says the central issue is not how close to financial disaster LILCO can be pushed, but rather, what is best for ratepayers, and it points to the substantial penalties that shareholders have already absorbed.

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[1] Grumman and 655 both objected that the new Asset Transfer Agreement had not been submitted before the hearings.

Counsel for LIPA and LILCO filed the Amended and Restated Asset Transfer Agreement (Transfer Agreement) on March 31, 1989. As had been argued by staff and LILCO at the hearing, the Restated Agreement is substantially the same as the Agreement we approved in Opinion 88-29. Therefore as required by Section 70 of the Public Service Law, we find that the proposed transfer is in the public interest and approve it, provided that the transfer is effected in the form of the Transfer Agreement, without material change.

CPB

CPB would allow the February 15, 1989 temporary increase to become permanent, followed by nominal rate increases (i.e., not reflecting RICO-related adjustments) of 4.75% in January 1990 and January 1991, with target nominal annual rate increases of 4.59% annually from January 1992 through January 1998. There would be no increases in the years 1999-2002. CPB calculates that, after reflecting the RICO settlement adjustments, rates would rise by an average of 4.09% during 1989-99 under its plan.

CPB saw its plan as entailing full write-off of the RMC by 1998; attainment by LILCO of investment grade status by the mid-1990's; payment of preferred stock dividend arrears by the third quarter of 1989 and resumption of regular preferred stock dividends at that time; and no payment of common stock dividends until the first quarter of 1991.

CPB criticized LILCO's plan as involving excessive rate increases, which can be reduced substantially without compromising LILCO's ability to maintain service and attain investment grade status within a reasonable time. Specifically, CPB objected to having two rate increases during calendar year 1989; CPB's plan would defer the October 1, 1989 increase[1] to January 1, 1990 (and slip the succeeding rate increases accordingly). CPB recognized that deferring these increases would depress earnings and coverages somewhat in 1989 and 1990, but said this would be mitigated by the Board's recommended freeze on common stock dividend payments in those years. CPB calculated that the result would be cash coverages of about 1.2 times in 1989 and 1.3 times in 1990, increasing to 1.5 in 1992, 1.6 in 1993, 1.7 in 1994 and 1.9 in 1995.

The Board also considers it an advantage of its plan that rate increases would end after 10 years, rather than 11 years under the LILCO-staff plan (the latter would entail a projected rate decrease after 1999, while CPB's plan would freeze rates at that point).

In order to arrive at the percentage rate increases of CPB's plan, the Board invokes six specific "rate mitigation" measures, calculated to have a nominal value of $405 million and a present value of $208.7 million for the years 1989-99, as follows:

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[1] In staff's plan, accepted by LILCO, this date is extended to December 1, 1989.

(1) The Governor will soon propose legislation that, starting in 1992, would limit the gross receipts taxes charged on incremental LILCO revenues related to the financial recovery asset.

(2) The 1988 settlement made available to LILCO $100 million in IDB financing in the first five years. CPB says the new agreement will add another $100 million in years six through ten.

(3) CPB proposes that 22% of LILCO's R&D budget ($41.1 million) during the years 1989-98 be earmarked for Shoreham decommissioning.

(4) CPB reflects the savings through 1998 of having new base load power plants built by NYPA (or a lower bidder) pursuant to the agreement.

(5) CPB's plan reflects $6.0 million in 1990 and $25-27 million annually in 1991-98 which staff calculated would be the savings flowing from implementing the management audit recommendations required by the agreement.

(6) Based on an historic ten year average, staff had estimated that LILCO would receive $1.1 million annually in property tax refunds over the next ten years, and CPB reflects these amounts in its rate plan.

In addition to the foregoing, CPB notes that staff has estimated Shoreham's salvage value between $25 million and $100 million, but that this was not reflected in CPB's rate plan.

Mr. Kessel, one of CPB's witnesses, said that after our September 1988 vote approving the earlier settlement, it seemed that S&P's and Moody's were prepared to give LILCO investment grade ratings based on the settlement, and that indeed, in September 1988, Moody's upgraded LILCO from Ba3 to Ba1. However, Mr. Kessel recognized that attainment of an investment grade rating is not likely to occur immediately after approval of the new agreement, because the company's financial situation worsened after the legislature failed to act on the 1988 settlement; as a result, LILCO's projected financial statistics will be somewhat less favorable under the new agreement than under the earlier settlement.

Mr. Kessel agreed that LILCO should pay off its preferred dividend arrears to dispel a "heavy cloud" over its financial future, and that borrowing for this purpose would make sense; but he deemed it unreasonable to likewise borrow to pay common dividends, for which LILCO has no obligation. Mr. Kessel noted in this context that in the near future cash coverage will be only 1.2 to 1.3 times, suggesting that LILCO should use its earnings to reduce its borrowings and fixed interest payments, thereby providing a cushion against shortfalls from earnings projections. He felt the company should defer paying common dividends until it can do so on a sound financial basis. Accordingly, CPB proposes that LILCO not be given the discretion to pay a common dividend until the first quarter of 1991 (at $1.50 per share, rising to $2.00 per share in the third quarter of 1991).

Mr. Kessel argued that this proposed 1989-90 common dividend freeze would not jeopardize LILCO's chances for an investment grade bond rating, since the rating agencies would be looking at many factors, and in fact, a common stock dividend freeze would benefit bondholders by enhancing cash coverages. He also dismissed any notion that the freeze would impair LILCO's financial flexibility, since as a practical matter, the company has no plans for issuing common stock in the intermediate term.

Staff argued also that common dividend retention increases the equity ratio, in turn increasing rates because of equity's higher cost rate compared to debt, and because equity earnings are subject to federal income tax. Mr. Kessel had characterized this view as "unduly mechanistic" and contended that a thicker equity ratio in the context of a limited dividend freeze would reduce financial risk and thereby reduce the cost of both equity and debt. Staff deems this notion counter-intuitive, arguing that investors would not lower their required returns and price up the stock when they know they will not receive dividends. Staff says that the benefit to interest coverage, from withholding dividends, would be minuscule,[1] and would be more than offset by the resulting higher rates to ratepayers and the resulting postponement of an investment grade rating.

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[1] Interest coverage would rise only to the extent that interest charges decline, in turn due to the lesser borrowing required if dividends are withheld.

CPB replies by quoting its witness Thorne's testimony that, based on a conversation with the same rating agency analyst cited by LILCO witness Sideris in this context, a dividend freeze would not be dispositive of the company's bond rating, the most important question instead being whether LILCO can obtain the rate increases contemplated by the rate plans under consideration. CPB meanwhile continues to argue that a dividend freeze would decrease rather than increase capital costs, since it would establish "a more reasonable, stable and achievable dividend policy," with LILCO's retention ratio reaching the 30% industry average by 1999 and producing a sustainable 3.5% DCF growth rate by that date. CPB says that under LILCO's plan a stable DCF growth rate will not be achieved until 2008, and dividend growth will not increase between 1992 and 2004.

CPB additionally argues that we do have the power to control a utility's disbursement of dividends, citing PSC v. Jamaica Water Supply Co.,[1] and that in considering this issue, we should not be influenced by how a freeze might cause shareholders to vote on the agreement. In any event, the Board deems the freeze proposal not unfair to shareholders since the funds in question would not be taken away from them, but reinvested on their behalf, hastening LILCO's progress toward being able to pay dividends on a sound financial basis.

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[1] 54 A.D.2d 10 (3rd Dept. 1976), aff'd 42 N.Y.2d 880 (1977). Staff, however, points out that in the case of Jamaica, the Commission enjoined payment of dividends to a parent company when the utility was operating at a net loss and couldn't pay its bills.

LILCO attacks the CPB rate plan as a whole as inconsistent with the objective of an expeditious return to investment grade status, which the Board has endorsed as in the best interest of ratepayers. LILCO also cites prior CPB statements that the rates under the 1988 settlement -- higher than the Board now proposes -- could not responsibly be reduced -- while LILCO's financial condition now is even worse than it was then. As to the dividend issue, LILCO quotes Mr. Kessel's testimony in July 1988 that "restoration of dividend payments will make LILCO more attractive to investors and reduce its cost of borrowing ... thereby reducing the cost of service and benefitting ratepayers."

* * *

CPB's rate plan is, in actuality, very similar to the LILCO-Staff plan. The only real difference is the proposed one month delay, from December to January, of each of the next two rate increases and the dividend freeze.

CPB's sole basis for the one-month delay is that there shouldn't be two rate increases in calendar year 1989. This is not a substantive consideration. The LILCO-Staff plan entails the same interval between rate increases as under the 1988 settlement. Indeed, those rate increases have already been delayed and there is no good reason to add still further delay.

CPB did propose to reflect in the rate plan (and thereby reduce the two 5.0% increases to 4.75%) a number of "rate mitigation" measures. These measures involve either legislation or adjustments to future year projections that may or may not occur.

It does not appear that CPB's dividend deferral proposal directly affects the levels of rate increases in CPB's plan. At any rate, while it is true that from the narrow bondholder perspective a deferral of common stock dividends could be viewed favorably to the extent it makes interest payments more secure, it seems highly likely that for LILCO to continue to withhold dividends would convey to the financial community an aura of continuing financial weakness which would more than offset any benefit from the interest payment security standpoint. The payment of dividends to common shareholders is a universal norm for financially sound utilities.

It should be borne in mind that all the plan does is to give the company the discretion to pay dividends. LILCO presumably will evaluate the matter using criteria similar to those in CPB's analysis, not choosing to pay the dividend until it makes financial sense to do so.

655 Associates, Inc.

655 criticizes LILCO's rate plan as focusing on LILCO's restoration to investment grade financial condition without consideration of the public interest and the rights of ratepayers. Further, the intervenor argues, LILCO has failed to submit any evidence that the rating services would in fact hereafter classify its debt issues as investment grade.

The intervenor also argues that LIPA's enabling legislation calls upon LIPA to take over LILCO only if LIPA can, by doing so, charge rates lower than LILCO would have charged; and says that "instead of lower rates through LIPA we now have higher rates proposed through LILCO for ten years." The intervenor further observes that we withheld rate increases from LILCO between 1986 and 1989, apparently arguing that ratepayers are somehow entitled to a continuation of that rate stasis.

Another point is that, whereas LIPA will be paying LILCO $1 for Shoreham, the plant has an alleged fair market value over $2.5 billion, and appropriate valuation hearings should take place and a realistic price paid to permit reduced rates to ratepayers.

In a March 27 letter, 655 registers various objections to the procedure here: (1) that the hearing continued on Good Friday when 655's counsel was unable to be present; (2) the briefing schedule is unduly short and prohibited access to the hearing transcript; (3) 655 was not made privy to LILCO's decommissioning cost study; (4) LILCO'S witnesses were allegedly not conversant with all the issues; and (5) the short schedule did not allow parties adequate time to prepare for the hearing.

Grumman

In the first place, Grumman, like various other parties, complains that the procedures here deprived it of a meaningful opportunity to participate and that the rate proposals should be rejected on that basis.

Grumman deems the LILCO rate proposals excessive and says that if approved, they will have severe long-term adverse economic impact on Grumman and its ability to compete in the aerospace industry, affecting also its 21,200 Long Island employees, as well as many vendors and suppliers on Long Island. Grumman complains that the rate proposals are unnecessary and unfair because the entire burden would allegedly be imposed on ratepayers rather than being shared at least in part by stockholders and bondholders.

Grumman points out that its competitiveness is already compromised by the high cost of living and doing business on Long Island, and the high wages it must consequently pay its employees. This would be aggravated, Grumman says, not only by the effect of higher rates on direct electric costs,[1] but also because of the effect on the prices charged to Grumman by its Long Island suppliers. Throughout its argument, Grumman does not consider the unanimous views of the parties with ratemaking experience or expertise that rates for at least the next decade will be higher with Shoreham than without it.[2]

LILCO answers that electricity costs generally represent only about 2% of the total costs of a typical Long Island company, and that with respect to the impact of electric rates on employees, the real price of electricity actually declined by 22% from 1986 through 1988.

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[1] There was a dispute as to whether, after its co-generation facility is on line, Grumman will even be a net buyer of electricity from LILCO, but this seems ultimately immaterial to the issues here.

[2] Grumman also mentions the possibility of mothballing Shoreham, but this alternative was considered and rejected in Opinion No. 88-29 (p. 3).

Grumman acknowledges the need to restore LILCO to investment grade status, but queries to what extent the attractiveness of LILCO's securities must be enhanced at ratepayer expense. Grumman points out that LILCO's rate proposals are premised not only on restoration of its bonds to investment grade, but also on payment of dividends to common stockholders, which, it asserts, would be reflective of a utility that has been properly and profitably managed. Grumman disputes that restoring LILCO's entire capital structure to "such a high investment grade quality" is necessary or in the public interest.

Grumman also argues that LILCO's return under this rate plan will be too high, since it will be equal to or better than that allowed other New York utilities, whose risks will be greater since they will not have the security provided by this sort of rate plan.

A further argument is that LILCO should finance through bonds and preferred stock, and therefore does not need to enhance the attractiveness of its common stock by paying dividends. Moreover, says Grumman, LILCO should not need to embark upon an extensive capital spending program if Shoreham is decommissioned and future power plants will be built by NYPA and independent power producers. Grumman also notes that paying dividends would actually increase bondholders' perceptions of risk due to additional demands on LILCO's cash flow.

Grumman goes on to argue that LILCO stockholders should not receive a "windfall" here, saying that as early as 1982-83 there was ample warning to investors of the risks associated with LILCO. Based on trading patterns, Grumman asserts that many present LILCO stockholders invested during the period when its future financial stability was clearly known to be at risk. Grumman says that the shareholders should not be relieved of the costs associated with the risks they undertook.

In its brief, Grumman takes the position that LILCO should use the funds it has earmarked for dividends for reducing rates instead. Grumman says that even if payment of common stock dividends were needed for attainment of investment grade ratings, it could hardly be worth the cost, since the dividend payments will average $200 million per year, while the investment grade rating would only mean $20-30 million in annual interest savings. Grumman goes on to contend that even if dividends are restored, investment grade status is not expected before mid-1990 at the earliest, and is not assured even then. Grumman asserts that rate increases to restore a utility to financial health should not be granted unless such restoration is reasonably certain.

LILCO responds that Grumman's proposal to redistribute $1 billion from shareholders to ratepayers demonstrates the lack of even a rudimentary understanding of the utility-investor-ratepayer relationship and would constitute an illegal confiscation of shareholder equity in violation of FPC v. Hope Natural Gas Co., 320 U.S. 591 (1944) and its progeny.

Grumman also expresses a concern that LILCO not recover, in any manner, its refunds pursuant to the RICO settlement. Grumman acknowledges LILCO's declaration that it does not intend to attempt to recover through rates any of these costs, but says that expressions of good intent are not enough, and that a mechanism should be designed to ensure that LILCO does not recover any of the refund.

Grumman's dividend arguments evince a basic misunderstanding. The inclusion of dividend payments in the staff and LILCO plans does not serve to increase the rate levels that would otherwise obtain. A dividend is merely the distribution to the company's owners of a portion of the return on investment which they have been allowed to earn. If the dividend is not paid, the funds are reinvested in the company ("retained earnings"); they still belong to the shareholders, and rates are not any lower. It is axiomatic that if we, in setting rates, were to deduct amounts otherwise earmarked for paying dividends, the utility would be deprived of a portion of its fair return.[1]

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[1] Grumman argues as though LILCO shareholders have no rights or entitlements, a surprising proposition since the intervenor itself is an investor-owned firm.

Ratepayer Class

In a March 17 letter, Judith Vladeck, Counsel for the ratepayer class in the RICO litigation, asks us to assure ourselves that LILCO is not seeking additional revenues to offset its RICO settlement payments, noting that LILCO appears to be requesting now an equity return higher than in the 1988 settlement. Secondly, counsel urges that the temporary rate increase not be made permanent until all ratifications of the February 28 agreement are completed and Shoreham's closing is assured.

Department of Law

DOL opposes the LILCO-Staff rate plan. DOL says that even if we had the power to approve ten years' worth of rate increases, to do so would be to lose the opportunity to examine LILCO's operations for management inefficiencies and improper cost allocations; DOL says that any rate increase should be for one year only, with any further increases to be implemented only after full hearings.

DOL adds that LILCO is seeking two successive rate increases totalling 10.4% in less than 10 months, which it considers unfair. DOL joined other parties in suggesting that the company should be required to defer its dividends in order to reduce the amount of borrowing needed over the next several years. DOL further says that decommissioning costs, the distribution of any proceeds from LILCO's tax appeals and litigation against vendors and contractors, and LILCO's Nine Mile 2 recoveries, should all be decided in separate proceedings.

Suffolk County

1. General Comments

Suffolk County witness Palast objected to establishing a comprehensive ten-year rate plan,[1] saying that we should instead maintain our normal ratemaking practices, including hearings to determine a reasonable phase-in plan for Shoreham, and normal rate proceedings held periodically to adjudicate non-Shoreham issues and set rates in the traditional manner. He pointed out that the February 28 agreement does not require adoption of a ten year rate plan, requiring instead only that we set rates which are just and reasonable.

In its brief, Suffolk stresses the latter point, and casts LILCO as unilaterally attempting to change the terms of its agreement with the Governor, that rates would be determined after open hearings in which all parties will have an opportunity to play a role.

Mr. Palast said so many issues are resolved under the LILCO plan, with so little time for review, that ratepayers will not get the benefit of full scrutiny of controversial items that will add large amounts to their bills. He cited, for example, the determination of the rate of return for at least three years into the future, disposition of the tax benefits of the Shoreham write-off, disposition of the Nine Mile 2 issue, and establishment of what he considered tantamount to a recovery level for Shoreham (by means of the Base Financial Component)..

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[1] Actually, rate increases under the staff plan would be locked in only through the increase of December 1990.

Mr. Palast also argued that there were various uncertainties under LILCO's plan, such as the date on which Shoreham depreciation begins. He said that because the utility is not required to file normal statements of rate base and expenses, these issues will not be properly reviewed.

Mr. Palast complained that he had inadequate time to review issues of such magnitude (in terms of the money involved and its complexity). He noted that the schedule provided less than a week to prepare testimony -- without the benefit of discovery, and without prior cross-examination of LILCO's witnesses.

The witness said that while LILCO's filing states that the underlying forecasts, revenue and expense projections, capital cost estimates and other assumptions would be made available to interested parties, they were not in fact made available to Suffolk.

Mr. Palast further contended that the prior hearings on the 1988 settlement have not provided sufficient opportunity to review LILCO's rate plan -- because whereas the 1988 settlement involved a specific rate plan, which had to be either accepted or rejected without modification, the new agreement does not restrict the ratemaking options that can be presented by intervening parties.

Mr. Palast suggested that, without adopting a ten-year plan, the Commission nevertheless could reaffirm its commitment to stockholders to basic principles: that rates will be set to permit LILCO to resume dividends and obtain an investment grade rating within a reasonable time. He noted that the Commission has already stated an intention to permit substantial recovery for Shoreham, regardless of whether it operates.

Staff rejects the procedural complaints of Suffolk and other parties as disregarding the comprehensive record previously compiled in this proceeding and the Commission's directive that the determinations in Opinion 88-29 should be viewed as a starting point. Staff says that all the rate plans advanced here are indeed grounded on the one previously approved, and that, indeed, this is merely the final chapter of a process that began with LILCO's Case 29484 rate filing in 1986. Staff adds that Suffolk's witness, Mr. Palast, has been intimately involved with these rate issues for a long time (even before the 1988 settlement was signed) and did in fact offer an extensive set of rate proposals; and as to the "late comers" to the proceeding, staff sees no basis for their complaining of their failure to have participated at an earlier time.

Meanwhile, Mr. Palast did make a number of specific proposals for modifying LILCO's rate plan, as follows:

2. Shoreham Stipulation

First, casting the agreement as a trade of rate increases in return for dismantling Shoreham, Mr. Palast proposed a stipulation to rescind at least part of LILCO's rate increases if Shoreham is not dismantled. Specifically, he recommended that LILCO bear the entire cost of eventual decommissioning and that the BFC be reduced by 10 percent (permitting us to reduce rates by $50 to $100 million a year).

LILCO objects that this proposal disregards the key objective of returning the company to financial health to the benefit of its ratepayers, and that once it transfers the plant to LIPA, LILCO will have no control over whether it operates or not.

It was pointed out by staff's witnesses that if Shoreham operates, LILCO's short-term revenue requirement would be higher than under the contemplated abandonment. Meantime, we made clear in Opinion 88-29 that while we were approving the rate increases under consideration there as part of a package, nevertheless rate increases were inevitable wholly apart from Shoreham's fate.

Suffolk's proposal presupposes that LILCO should be punished if, despite the February 28 Agreement, Shoreham winds up in operation. If, ultimately, the plant does operate, we can then review the facts and circumstances and determine whether any action is appropriate. Until then, Suffolk's proposal is rejected.

3. Dividend Deferral

Seeing LILCO's proposal as not striking a fair balance between investors and ratepayers, Mr. Palast sought to "restore some of the balance" by deferring LILCO's dividend restoration for two years, with the savings in the meantime used to reduce rate increases by $278 million. The preferred dividend repayment would likewise be delayed two years, allowing the company to hold over $500 million in cash, reducing borrowing costs by approximately $150 million over the two years.

Specifically, Mr. Palast proposed that the savings claimed from his plan be accounted for as a reduction to the BFC, with hearings to be held on its disposition to ratepayers. Absent a hearing, he suggested reducing rates by $97.7 million per year until the value of the benefit is exhausted; this would eliminate the first rate increase in the plan (already granted subject to refund in Opinion 89-4).

Mr. Palast deemed his proposal very conservative, in not seeking to remove from LILCO every excess dollar available, and not going to the limit in setting rates at "the minimum needed to support LILCO at an acceptable level of financial integrity" (quoting Opinion 88-29, pp. 53-54). Meanwhile, he attributed the plan's conservatism and simplicity to the limited hearings; Mr. Palast said that in working on similar settlement plans in other states, he has had time to develop financial models which test the financial effects of varying rate plans, and to develop financing mechanisms advantageous to ratepayers. For example, he said, further rate reductions could be achieved by LILCO's using sale-leasebacks, equity-for-debt swaps, payments of interest or preferred dividends in common stock, payments in stock to ratepayers through LIPA, and the sale of assets. He further asserted that the analysis here relies on a LILCO financial model which contains errors and restrictive assumptions tending to project a poorer view of the company's financial future than is realistic -- for example, the model assumes borrowing by LILCO for plants which, in fact, will be financed by state agencies.

In further support of his proposal, Mr. Palast said that LILCO contemplates no new offerings of common or preferred equity in the next decade so that dividends are not needed to "lure" new investors, and that his plan would improve LILCO's cash position during the period when it would otherwise be cash short, with new debt holders having more cash security.

Mr. Palast also argued that LILCO's stock being traded at a heavy discount from the target book value in LILCO's plan indicates that investors don't expect the company to receive all the rate increases requested. He contended that LILCO's plan would ultimately provide a book value of $19.02 per share in 1990, or $502 million above current market value. When tax effects are included, he calculated that LILCO could sustain a reduction of around $750 million in rates and maintain book value at its current market value; indeed, he said, his plan only would reduce book value by about $2 a share.

Mr. Palast further observed that LILCO hasn't paid dividends in five years, yet has successfully borrowed billions of dollars; and while interest has been high, this has been due not to a lack of dividend payments, but to the riskiness of the debt. And he said the risk to debt holders would virtually end under any reasonable rate plan regardless of whether common stockholders receive dividends.

Mr. Palast went on to argue that while LILCO will need to borrow over $3 billion in the next five years to fund the Shoreham (BFC) deferred revenues, its borrowing requirement will fall to zero by 1995, when the combination of depreciation charges and return of the deferred revenues provide a steady cash surplus. He said this would assure lenders of recovery via LILCO's reliable future cash flow; that rate plans need not be overly constrained by projected coverages for years in which there is no borrowing; and that LILCO's borrowing needs have changed in nature, from an open ended need for capital in a risky project (Shoreham) to the medium term funding of a temporary cash shortage (revenue deferral).

Staff in brief labels Suffolk's theory "simplistic and startling," saying that if ratepayer benefits can be so easily obtained, one must ask why we do not immediately ban all common dividend payments by utilities throughout the state. As a practical matter, staff asserts that Suffolk's plan would guarantee rejection of the February 28 agreement by LILCO shareholders. And at any rate, staff says that Suffolk's proposal would likely constitute an impermissible confiscation of utility property without due process, since it would reduce equity return by approximately 300-400 basis points.

As to the deferral of paying preferred dividends, staff says these dividends would accumulate and must eventually be paid, so that the postponement would merely defer the inevitable and create a larger arrearage to be financed. Staff adds that LILCO will not likely gain an investment grade rating until it becomes current on its preferred dividends.

Finally, staff deems the most serious flaw in Suffolk's presentation to be the absence of any consideration or calculation of interest coverage. Staff says that its own plan already shows precarious coverage levels, even with three rate increases, during 1989-91, and suggests that a coverage calculation under Suffolk's plan might actually show a payment default.

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As previously discussed, LILCO's continuing failure to pay common stock dividends is inevitably perceived in the financial community as an indication of overall financial weakness. And Mr. Palast's various points notwithstanding, the payment of dividends, rather that retention of that portion of earnings in the business, does not materially affect rates.

Suffolk's proposal is even more clearly untenable than CPB's, which would only have postponed dividends while accumulating the earnings; Suffolk would, further, reduce rates by the amount of the unpaid dividends. This would affect not only perceptions of LILCO's financial condition, but the reality, driving the company's financial parameters even below their current levels. It would also, as previously explained, take property from shareholders without good reason, thereby depriving LILCO of its constitutionally required opportunity to earn a fair return.

4. RICO Adjustment

Mr. Palast proposed that the $400 million RICO settlement funds be reflected as an adjustment to the BFC. He said this would parallel LILCO's own plan to take a one-time write-off of over $200 million to reflect the difference between Shoreham's book value and the BFC. Mr. Palast defended this proposal on the basis that accounting for the rate reductions as a one-time write-off would prevent the resulting income reduction from acting as a drag on future earnings; indeed, he said, the cash quality of LILCO's earnings might even be improved.

The RICO settlement itself specifies the manner by which the payments to customers are to be effectuated, and does not require LILCO to take any write-off.

5. Property Tax Litigation

Suffolk proposes that as a condition of approving this rate plan, the Commission order LILCO to end its tax litigation against local government. Mr. Palast gave six reasons:

1) In 1986, during the drafting of the LIPA statute, local government explicitly agreed to a 10 year

phase-out of taxes in return for the end of the threat of litigation. Mr. Palast cast LILCO as asking the Commission to unilaterally impose one side of the bargain -- the phase-out of taxes -- while ignoring the other side, the end of the lawsuit.

He explained further that to compensate local government for a state-caused revenue loss, LIPA is barred from continuing the lawsuit; but now a situation arises not contemplated by the LIPA sponsors, namely, that LIPA would buy the plant, removing it from the tax rolls, but leaving LILCO with the right to continue the lawsuit.

2) The agreement terminates a whole roster of lawsuits against LILCO in the name of "putting Shoreham behind us;" yet LILCO is permitted to maintain a suit that could harm local government.

3) Mr. Palast charged that LILCO brought the tax suit in bad faith, in order to induce the town and local school board to support a Shoreham operating license.

4) The new agreement itself contemplates that LILCO will use its best efforts in good faith to settle this litigation. Mr. Palast said that at a minimum, we should require some verification from Brookhaven that the utility is bargaining in good faith as required by the agreement.

5) The litigation allegedly gives LILCO an opportunity to double collect the Shoreham taxes, from

Suffolk and from ratepayers. Mr. Palast explained that the BFC is equivalent to the remaining book cost of Shoreham, which already includes the capitalized property taxes LILCO will collect through depreciation charges.

6) The rate plan as proposed is meant to provide for LILCO's minimum financial needs, and the company's financial projections include no expectation of any recovery from Brookhaven; thus, Suffolk argues that any compensation from Brookhaven from the litigation would be by definition a windfall unnecessarily enriching LILCO at ratepayer and taxpayer expense.

As an alternative to requiring LILCO to end the litigation, Suffolk proposes that we order LILCO to credit ratepayers with 100 percent of any proceeds received from the litigation. Mr. Palast noted that we have allowed utilities to keep a portion of tax refunds in the normal course of business, to encourage their seeking such refunds on behalf of ratepayers. But he said this litigiation is not part of the normal course of business, and that furthermore, the new agreement seeks to have LILCO end the litigation; thus, LILCO should be discouraged, not encouraged, from pursuing the litigation.

We rejected similar contentions in Opinion 88-29, approving the 1988 settlement, noting that in this litigation LILCO seeks to recover, for the benefit of ratepayers, tax payments that the company feels were excessive. There is no reason for a different conclusion here. Moreover, LILCO is bound by the terms of the February 28 Agreement to use its best effort to resolve its Brookhaven tax proceeding, and a failure to do so would be a legitimate subject for a separate complaint.

6. Lawsuits Against Vendors

Another Suffolk proposal is that at least 80% of the proceeds that LILCO may obtain from its lawsuits against Shoreham vendors be credited immediately to ratepayers. LILCO had instead proposed that any such proceeds be divided between ratepayers and shareholders "generally consistent with their relative contributions to the underlying claims."

Mr. Palast said that LILCO's approach, while having an ostensible ring of fairness, in fact virtually promises the company the lion's share of any receipts -- because these lawsuits are essentially involved with the prudence write-off, so that LILCO could well consider its "contribution" to the underlying claims to be 100%.

Mr. Palast also contended that since LILCO in its projections did not reflect any proceeds from these lawsuits, any amounts it does obtain would be a pure windfall, giving LILCO more than is permitted by the standard of rate minimization; he said these funds should be used, like any other revenues, to reduce the burden of rate hikes on consumers.

Mr. Palast added that a utility should not need any incentive to pursue this kind of compensation from vendors, which should be a part of prudent business conduct. However, he said that if we do wish to provide an incentive to seek these recoveries, we should limit LILCO's compensation to 20% of any gain (plus any cost incurred in the litigation, assuming such costs are not already borne by ratepayers).

Staff points out in reply that LILCO's proposal here mirrors a provision of the 1988 settlement, which was approved by the Commission, and staff sees no basic unfairness in allocating costs and recoveries to shareholders/ratepayers according to their underlying responsibilities.

The settlement recognizes our authority to determine the proper disposition of any such refunds at the time they are received.[1] We will exercise that authority in a manner that is fair and reasonable to LILCO and its ratepayers.

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[1] As noted in Opinion 88-29 (p. 11), we have not attempted to resolve controversies between LILCO and its vendors regarding costs incurred in building Shoreham. We encourage LILCO to pursue valid claims against such vendors, and we shall determine the proper disposition of any recoveries from such litigation.

7. Decommissioning Cost Cap

Mr. Palast proposed that LILCO be held to the $465.1 million projection for the total cost of decommissioning, on which it based its rate plan. As an alternative to a nominal dollar cap, he said the Commission could limit the charges to a present value of $300 million. A further alternative would be to hold complete hearings, to determine a fair and prudent cost of decommissioning chargeable to consumers.

Suffolk argued that the asset transfer agreement will actually transfer to ratepayers the responsibility for a cost, that of decommissioning, without a full determination of whether that cost is just and reasonable, and what the amount will be. Mr. Palast suggested that this can be remedied by determining that the just and reasonable charge is $300 million.

He further argued that the decommissioning charges will certainly exceed a 2.5% effect on revenues, which in his view constituted a major rate increase which requires full review and hearings. He added that we are being asked to transfer a cost to ratepayers in the form of an irradiated plant which must be dismantled, when none of the parties has had an opportunity to inspect it since February 28; again, he suggested that the problem be remedied by setting a reasonable cap on charges.

A further point made by Mr. Palast is that LILCO has used a "supposedly low cost of Shoreham decommissioning" to justify its expenditures and rate hikes in the past, so that the company should now be required to accept responsibility for its projection. Finally, Mr. Palast argued that LILCO's irradiation of the plant by low power testing, over the objection of Suffolk County, was clearly imprudent, and that a cost cap should be imposed in lieu of a hearing on the added cost of decommissioning caused by the alleged imprudence.

Mr. Palast claimed that the financial effect of his proposed cost cap on LILCO would be zero in the short run and likely zero in the long run as well. He said that because his proposed cap is 100% of LILCO's projected cost, the company will not have to write off anything this year; and assuming LILCO is correct in its projection, there is no reason to believe it will ever have to take a write-off. He noted that the $300 million present value figure is taken from a LIPA study, based on the cost of decommissioning a plant run for several years at full power, so this should not be a difficult limit to maintain. At any rate, he said, if LILCO does exceed the proposed limit, this would not happen until the turn of the century, by which time, he said, LILCO will be a cash rich company with few borrowing obligations, so that the potential additional cost would not unreasonably burden it.

Staff's witnesses considered this proposal as introducing such a degree of uncertainty for LILCO's future finances that it would jeopardize an investment grade rating. They said that even if the level of the cap seems reasonable and not arbitrary, the perception in the financial community is still one of great uncertainty.

Staff also points out that while the decommissioning cost estimate in question is likely to be on the high side, the problem is that the work will be performed by other entities, and neither we nor LILCO will exercise control; in any event, staff notes that the decommissioning costs will be capitalized and recovered over a 40 year period, thereby softening the impact on ratepayers.

The record indicates that only to a minor extent will the work be driven by the irradiation of the plant, which is the equivalent of a week of full power operation. The bulk of the job would be physical destruction. Unlike the decommissioning of a large reactor which has operated for 30 years, high radiation levels are not a serious problem, and ample experience with demolition of large unirradiated structures exists. Raterpayers will only be charged for actual expenses, which should not approach the proposed cap.

We stress that only true decommissioning costs are covered by this flow-through assurance. Any costs occasioned by keeping the plant in a "mothballed" state are not chargeable to ratepayers.

8. Rate Cap

Mr. Palast saw no evidence supporting LILCO's 5% projection of yearly rate increases after 1990, and he recommended imposing the 5% as a cap. He stated that he could not analyze the 5% figure because of the alleged lack of supporting evidence, and because the schedule does not allow sufficient time to analyze and propose an alternative set of numbers.

Mr. Palast recognized that we cannot impose a tariff beyond three years. But he saw no reason why the utility cannot agree, as part of this settlement, not to seek tariffs beyond the cap figure.

Mr. Palast cited a plan adopted for New Orleans Public Service Inc. capping rate increases at 6% per year, including fuel costs, with costs not recoverable under the cap being deferred for collection within a ten-year period. He said regulators there left themselves the authority to review other issues at later hearings which could further reduce the cap, and indeed, that the cap was later reduced to reflect a finding of managerial imprudence.

Here, Mr. Palast proposed that LILCO be permitted to defer all costs above the cap amount during the first five years, with the deferral to be added to the BFC for rateable collection within ten years. After six years, he said, when the company is expected to have a cash surplus, it would be allowed to defer only such sums as can be collected by the tenth anniversary of the final adoption of the rate plan.

Staff's witnesses pointed out that the New Orleans utility wound up, as a result of the rate cap, with some of the lowest financial ratings in the country. LILCO answers with the observation that Suffolk's capping proposal contradicts its own recommendation against setting rates for ten years, and that there is no rational basis for limiting "distant rate increases in an uncertain future."

The rate increases beyond 1991, in the LILCO-Staff plan, are merely projections. Given the inevitably large uncertainties in trying to project anything that far ahead, to convert the projections into an inflexible cap would be unreasonable.

9. Nine Mile 2 Charges

Suffolk proposed that Nine Mile 2 issues be analyzed in separate hearings, with this agreement approved subject to consequent later adjustment of LILCO's rate base. Mr. Palast contended that NM-2 charges will ultimately total billions of dollars for LILCO ratepayers, and should not be determined as a hastily reviewed footnote to this case. And he saw some further issues needing review here, contending that the plant has not been operating properly, isn't used or useful to LILCO ratepayers, and that the implications of the recent outage have not been addressed.[1]

Alternatively, Mr. Palast suggested, LILCO's Nine Mile 2 rate base figure should be limited to $749 million. He saw LILCO as improperly proposing to cap the disallowance instead of the allowance. However, this was apparently a misunderstanding by Mr. Palast.

The Suffolk witness also asserted that a $52 million payment from Niagara Mohawk, made in return for LILCO's dropping all claims for mismanagement of the project, should go to ratepayers because, he contended, the proceeds from such mismanagement claims would have rightfully belonged to them.[2] He also saw no showing of financial need by LILCO for the $52 million, deeming it simply a windfall for LILCO while ratepayers suffer rate increases for the Nile Mile 2 plant.

Mr. Palast did acknowledge that the $52 million would provide LILCO with some needed cash flow relief, but said this can be preserved by permitting the company to hold the funds for five years, at which time it will enjoy a cash surplus from which it can return the funds with interest.

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[1] As staff says, Nine Mile 2 issues can and will be resolved in other proceedings, consistent with the rulings applicable to other cotenants; hence there is no need for separate additional hearings.

[2] The utilities had originally agreed to settle the Nine Mile 2 prudence case on the basis of a $4.45 billion rate base allowance for the plant. To induce the other co-tenants to accept the $4.16 billion cap subsequently proposed by the Commission, Niagara Mohawk agreed to make them whole for the difference, in return for their agreeing not to sue Niagara Mohawk. This is the source of $52 million payment to LILCO.

This item is similar to the Shoreham vendor lawsuits. As LILCO argues, the $52 million payment merely compensates LILCO for a portion of what it lost when, in lieu of a prudence disallowance, the Commission imposed a recovery cap on Nine Mile 2. To return the $52 million to ratepayers would effectively give them a double recovery, at LILCO's expense, for that portion of the Nine Mile 2 write-off.

10. Other Items

Mr. Palast identified four other areas of concern that he was not able to address fully due to time constraints: rate of return, the BFC, tax issues, and disposition of the RICO settlement proceeds.

As to rate of return, he said that LILCO's plan changes the 1989 equity return from 13.25% to 14.20% without any explanation or justification. He urged denial of this increase.

Concerning the BFC, he saw no record justification for the specific figure proposed, or for its (roughly) $200 million difference from Shoreham's book value, noting too the lack of any scrutiny of the Shoreham book value figure itself. He considered further investigation and hearings necessary to properly analyze this.

His next point was that LILCO's plan splits the tax benefits of the Shoreham write-off in a "blunt manner" which may not reflect a fair division between ratepayers and shareholders. He also noted that during the temporary rate phase of this proceeding, the company requested the right to employ special tax accounting measures. Mr. Palast urged hearings to provide the parties with the time and information needed to analyze these tax issues.

Finally, Mr. Palast contended that even if LILCO rejects Commission-imposed modifications to the rate plan, we have the absolute right to close Shoreham without LILCO's consent, based on a putative finding that the plant's operation is not economically justified. He cited Pacific Gas and Electric Company v. State Energy Resource Conservation and Development Commission, 461 U.S. 190 (1983), and pointed to a number of studies suggesting that Shoreham's operation would be costlier than abandonment. Indeed, he cast the Commission as already having so ruled, in approving the 1988 settlement.

LILCO says the cited Pacific case involved a moratorium applicable only to future construction of nuclear plants and hence is no precedent for a state's interfering with a completed one. Indeed, according to LILCO, the Court in Pacific made clear that the latter would have been "impermissible."

Staff considers the issue more complex than recognized by Mr. Palast, adding that as long as the company remains bound by the standstill conditions in the temporary rate order and in the February 28 agreement, we should refrain from acting on Suffolk's recommendation. But staff says that should LILCO receive an operating license and seek removal of the condition, then the time would be ripe for further exploration of the issue.

Clearly, under present circumstances, there is no need to consider the limits of our authority over Shoreham in the event the settlement fails to be implemented. As for the proper equity return, the recently authorized temporary rate increase is premised on a 14.2% return which is reasonable under LILCO's current circumstances. And the calculation of the BFC and the allocation of the tax benefits are the same as we found reasonable in Opinion 88-29.

STAND-BY SERVICE RATES

During the hearings on the 1988 settlement, In-Novo Engineering and Development Company was permitted to raise once more an issue regarding the propriety of LILCO's rate design for back-up service to on-site generators. LILCO's rates were based on principles used to develop Con Edison's and Niagara Mohawk's rates for this service, which in turn developed out of our on-site generation rate proceeding, Case 27574, concluded by Opinion 82-10 (May 12, 1982). In-Novo attacked LILCO's stand-by rates as violating both Opinion 82-10 and PURPA.

We rejected In-Novo's claims (for a second time) in Opinion 88-29, approving the 1988 settlement. Nevertheless, In-Novo was given still another opportunity to address this issue in the hearings held in February on LILCO's pending rate application, and the matter is argued in In-Novo's brief.

In-Novo's basic claim has been that rates for back-up service to on-site generators should not exceed the firm service rates applicable to the classes to which on-site generators would belong but for the fact that they generate power. According to In-Novo, the regular firm service rates for S.C. 1 and S.C. 2 (small residential and small commercial) are appropriate as alternatives to stand-by rates per se, but this is not true for larger residential and commercial classes where time-differentiation and demand charges come into play.

In Opinion 88-29 we recognized that In-Novo wants co-generators to be charged only for energy, and with no time differentiation,[1] because they take little energy, but may need it on-peak. But we said that this is precisely the kind of situation for which demand charges and time-of-day rates were invented, accordingly rejecting In-Novo's complaint. We also pointed out that co-generators seeking backup service still have the option of simply taking the regular firm service rates that would otherwise apply to them (but that In-Novo actually wants rates more favorable than that equivalency would provide).

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[1] In-Novo now appears to claim that in actuality its rate design would incorporate time-differentiation, carried over from firm service rates.

In its brief here, In-Novo points to Opinion 82-10 conceding that the assignment of costs underlying contract demand charges was arbitrary; but we nevertheless applied that cost assignment on an interim basis, in the absence of a more refined assignment of distribution costs. In-Novo reads our order as giving staff and the company the task of finding a more refined method, which In-Novo says they failed to do. And In-Novo appears to contend that its own rate design proposal -- which it describes as "a simultaneous equation with the firm rate class of origin such that the point of commonality is the point of average load factor of the classes" -- provides that more refined method.

At issue here is our decision in Opinion 82-10 to provide for the recovery of costs 50% through pre-set contract demand charges and 50% through demand charges based on actual take. (The utilities had argued for 100% recovery through contract demand charges.) The problem with In-Novo's position is that it does not really seek to refine that 50-50 split, but instead seeks to eliminate demand charges altogether, in favor of a pure energy rate.[1] This must be rejected, for the reasons expressed in Opinions 82-10 and 88-29.

In-Novo also continues to argue that the stand-by rate design violates PURPA because it differs from the firm service rate design to which cogenerators would be entitled if they didn't cogenerate. The simple answer to this contention is, again, that stand-by customers are given the option of electing the firm service rate schedule in lieu of the stand-by rates.

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[1] In-Novo gets there by arguing that because stand-by customers take service at random, the split between the two types of demand is variable, and hence the cost recovery must be related to energy use.

DISCUSSION

Having reviewed above positions of the parties and resolved some of the specific concerns they raised, we now turn to a broader analysis of the more fundamental issues.

Adoption of Rate Plan

We now have before us a second effort to break the Shoreham deadlock. Continuation of that deadlock, as we observed in Opinions 87-26[1] and 88-29,[2] jeopardizes the goal of effective utility regulation -- assurance of a reliable and reasonably priced power supply; consumes management's attention; deters effective development of alternative supplies, including energy conservation and demand side management; and poisons the utility's relations with consumers and government officials. And the prolonged uncertainty bred by the deadlock imposes costs on all -- ratepayers, investors and the Long Island community as a whole. The public interest requires an end.

The 1988 settlement provided an attractive resolution of the Shoreham deadlock. As noted in Opinion No. 88-29,[3] rate increases on Long Island are inevitable. The 1988 settlement was clearly superior to other options, such as a LIPA takeover, a LILCO bankruptcy, Shoreham operation and/or mothballing and rejection of the settlement. The settlement -- and its essential terms, including the closing and transfer of Shoreham, the three-year fixed rate increases, the creation of the FRA, the equity return cap, the commitment to alternative energy plans and the resolution of litigation -- was clearly in the public interest.

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[1] At p. 5.

[2] At pp. 46-47.

[3] At p. 52.

Since the Legislature neither approved nor disapproved the 1988 settlement, it lapsed. We cancelled tariff changes designed to implement that settlement by order issued December 1, 1988. We later invited the principal parties -- LILCO, LIPA and NYPA -- to reaffirm the 1988 settlement.[1] And, on February 16, 1989, we granted LILCO a temporary rate increase of 5.4%, which was comparable in result to the 1988 settlement's provision for a 4.9% increase effective December 1, 1988.

The February 28 Agreement preserves the essential non-ratemaking features of the 1988 settlement. It revives the framework for transferring and closing Shoreham and for ending related litigation. The parties to that settlement anticipated that the PSC would ensure that future impacts on subsequent rates are minimized to the greatest possible extent.

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[1] Statement of the New York Public Service Commission on the LILCO Request for Temporary Rates, dated December 28, 1988.

The record presents an ample basis for a rate plan that will establish just and reasonable rates for LILCO through December 1991, and a conceptual framework for future ratemaking. The rate plans advanced by the parties, notably LILCO, staff and CPB, suggest near-term rate increases and long-term ratemaking principles designed to limit rate impacts on consumers without sacrificing LILCO's eventual financial recovery.[1]

Some of the parties' arguments suggest that the bifurcation of the process employed in this phase of the case to break the Shoreham deadlock means that we must start anew on all rate issues. The parties objecting to the adoption of a rate plan and calling for further hearings, however, fail to recognize that the issues of Shoreham's closing and decommissioning on the one hand, and the proper level of LILCO's rates on the other, are again inextricably linked, this time in a two-step process. LILCO has agreed, in the February 28 Agreement, to abandon Shoreham, provided LIPA and NYPA reaffirm their previously agreed upon roles and provided that we determine just and reasonable rates.

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[1] The three rate plans offered here by the parties who have been the main adversaries in LILCO rate cases in the past are substantially similar, reflecting broad support for the principles that should be employed in establishing a reasonable rate plan. The proposals are similar in concept as well to the plan approved in 1986 to mitigate rates if Shoreham went into service. Case 28252 - Long Island Lighting Company - Shoreham Ratemaking Principles, Opinion No. 86-14 (issued June 12, 1986).

Our statutory authority to bring about the transfer and closing of Shoreham as envisaged in the February 28 Agreement is uncertain, and certainly could not be exercised quickly and without extended litigation. And, as we foresaw in Opinion No. 87-26 (p. 8), LILCO cannot be expected to "abandon Shoreham if doing so precipitates its own demise." In Opinion No. 88-29, we estimated LILCO shareholder losses at $3.3 billion and observed (p. 53):

> The higher financing costs, probable maintenance and service cuts, morale problems and general weaknesses of a utility kept anemic by inadequate rates will actually cost the customers more in the long run than a sensibly paced return to reasonable financial health. (Id.).

Thus, it should have come as no surprise that LILCO reserved the right to "veto" the February 28 Agreement if the necessary approvals and a reasonable rate plan were not in place by April 15.[1] In essence, although the approval process has been changed, all of the parties having specific responsibilities in the 1988 settlement must again act to bring to fruition the February 28 Agreement.[2]

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[1] The company, of course, has since agreed to be bound by Staff's rate moderation plan as though it were a fully executed agreement.

[2] Although the Chairman of the Urban Development Corporation, the Executive Director of the Consumer Protection Board and the State Energy Commissioner were signatories to the 1988 settlement, they did not have specific duties in its implementation.

Therefore, the proposed resolution of Shoreham is not materially different from that contemplated in the 1988 settlement. Accordingly, our March 6 Order (p. 3) establishing this phase of the proceedings indicated that the "rate determinations previously made in Opinion No. 88-29 would provide an appropriate point of departure" and advised the parties to "address, among other things, any changes in circumstances that may have an impact on...[those] determinations...". There, in evaluating rates under the 1988 settlement, we had found (p. 52):

> [t]he settlement does entail increases above present rates, but it cannot be stressed too strongly that comparing the settlement to present rates is meaningless. Rate increases are inevitable on Long Island, whether or not Shoreham runs, whether LILCO goes bankrupt, and whether there is a LIPA takeover. Predictions as to which alternative will be least expensive for ratepayers depend heavily on many future unknowns; but based on our evaluation, the settlement benefits ratepayers. It protects them from rate increases any greater than 5.0% for the first three years; LILCO is foregoing its claim to recovery on $380 million of investment (in addition to the $1.4 billion of Shoreham investment we found to be imprudent); the company's FRA recovery would be phased in according to a schedule emulating that which we earlier prescribed for a Shoreham phase-in; and the company is accepting an equity return cap. Furthermore, the rate increases under the settlement are projected to approximate inflation, so that the real price of electricity would hardly increase at all over the decade covered by the settlement (and rates are actually projected to decrease between 1998 and 2002).

Thus, our March 6 Order properly put all parties on notice as to the proper focus of the remanded proceedings. They were not intended to provide a de novo review of all LILCO rate issues. All interested parties had a fair opportunity to review and cross-examine testimony on the underlying rate assumptions of the 1988 settlement in hearings conducted in July, 1988. Because most of these assumptions were used again in the staff, LILCO and CPB rate proposals here, a further opportunity to challenge them was available to interested parties in hearings held in March, 1989 in the current phase of this case. In short, the claim that our procedures did not meet the requirements for "full hearings" is erroneous.

We reject also the motion that, despite our continuous and painstaking review of LILCO rate matters in these proceedings over the last 2 1/2 years, further delay and hearings are necessary to flesh out the issues. Since December 1986, we have carefully scrutinized all LILCO rate and service matters, through 20 days of hearings at which a record of more than 5,000 pages and over 100 exhibits was compiled. To suggest that we lack sufficient familiarity with these issues to determine just and reasonable rates for a 32-month period is to ignore the facts.

For their part, LILCO, staff and CPB offered rate proposals and supporting testimony and exhibits of expert witnesses that embodied our basic findings in Opinion No. 88-29 and explained differences in rate levels and projections. Other parties, however, essentially ignored our findings in Opinion No. 88-29 and either offered detailed rate proposals (Suffolk, for example) or discrete rate measures in the context of an *alternative* resolution of Shoreham (LIA, Grumman and 655 Associates). These latter parties have demonstrated no sound reason why the cumulative record that has been established in this proceeding to date should not be relied upon at this juncture. Indeed, treatment of rate issues *de novo* would further prolong the Shoreham deadlock, which has been extremely costly to LILCO's ratepayers and stockholders. It has brought the company to the verge of bankruptcy and threatened the provision of safe and adequate service to its customers. Ratepayers have borne rate increases associated with construction of Shoreham and will bear many of the costs attributable to delay in resolution of the controversy. It is in everyone's interest that these matters be finally resolved.

With respect to the alternative rate proposals offered here, the principal differences between the staff[1] plan and the CPB plan concern the one-month timing difference for the next two rate increases, a minor difference in the amount of those increases, and disagreements over dividend payment policies. Both plans purport to show slightly lower rate increases over the planning horizon, but each plan has incorporated certain rate-reducing assumptions that were not made in the 1988 settlement projections. For example, staff's projections now reflect nominal savings after 1991 associated with the management audit recommendations of $185 million and the use of lower cost NYPA debt (rather than LILCO financing) for new plant construction. CPB's projections reflect also the enactment of legislation limiting gross receipts taxes and the extension for five years of $100 million of IDB financing; CPB would also freeze rates in the final year (1999) of the study period. Both parties incorporate, for the purpose of estimating future rate levels, the payments to customers LILCO has agreed to make in settlement of the RICO litigation. All of these factors tend to dampen projected rate increases compared to the 1988 settlement.

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[1] The discussion here will not refer to LILCO's plan because the company now supports Staff's.

The fact remains, however, that projections over a period of 10 or more years are inherently uncertain, and actual results will be influenced by events we can neither predict nor control. Our review of these plans leads us to conclude that, on balance, they are substantially similar to each other (except for a few alternative input assumptions) and similar also to the rate projections underlying the 1988 settlement. In short, there are no material differences in the "old" and "new" rate projections.

This conclusion underscores the need to resolve the issues affecting the near-term rate proposals. In this context we note initially that the passage of time has hurt LILCO's financial parameters. Whereas the 1988 settlement was expected to produce cash coverage of 1.4 in 1989 and 1990 and 1.5 in 1991, the new plans project annual coverages of 1.2, 1.3 and 1.4 for this period. Thus, LILCO faces a more precarious near-term financial outlook than it did last year, which suggests that LILCO's financial recovery (and the concomitant cost savings to ratepayers) will be postponed. It is of utmost importance that the near-term rates we set here arrest LILCO's deteriorating financial position without unduly burdening ratepayers.

For these reasons, we favor staff's rate plan over CPB's. Although the one-month timing difference and the .25% rate difference increase are relatively minor, LILCO's prompt return to an improving financial condition should not be jeopardized by small adjustments that may be counterproductive. As noted above, the passage of time has eroded LILCO's financial position, and continued postponement of financial recovery eventually causes higher rates to consumers. Moreover, staff's plan produces results closer to those obtained in the 1988 settlement, which we endorsed.

Similarly, CPB's proposed dividend restriction, as we observed above, could be self-defeating without conferring ratepayer benefits. We have only restricted management's decisions on whether to pay out dividends in extreme situations where the dividend payment practices directly compromised the utility's ability to carry out its public service obligations.[1] The type of management disregard of its responsibilities that would lead us to control dividends is not evident here. Furthermore, such a restriction would be viewed in the financial community as a clear indication of a financially-debilitated utility. Therefore, while we will carefully monitor LILCO's payout practices, we will not adopt CPB's proposal.

Two additional features of staff's plan merit comment. First, under no circumstances will ratepayers have to bear the costs of the payments agreed to by LILCO in settlement of the RICO litigation. These costs must be charged to shareholders, as contemplated by ¶6 of staff's Rate Moderation Agreement. Second, as the Agreement explicitly notes (¶'s 1(a), 8 and 9), the rate increases (including the recently authorized temporary rate increase of 5.4%) will not be made permanent until all required approvals -- including that of LILCO shareholders -- are received. The rate measures approved here are based on the specific resolution of Shoreham issues proposed. If the February 28 Agreement fails, the rate measures approved here are no longer in effect.

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[1] Public Service Comm. v. Jamaica Water Supply Co., 54 A.D.2d 10 (3rd Dept.), affirmed, 42 N.Y.2d 880; cf. Case 29332, Wanakah Water Company - Water Treatment Facility, Opinion No. 87-9, issued May 11, 1987.

On balance Staff's proposal best accomplishes the twin goals of mitigating rate increases and gradually restoring LILCO's financial health. This Opinion and Order will permit LILCO to file tariffs for two additional rate increases of 5% -- on an average cents per kwh basis including fuel -- to become effective on December 1, 1989 and December 1, 1990, respectively. Consistent with Opinion No. 88-29 (pp. 38-40), we shall review rate design issues before the rates become effective. For rate years beginning after November 30, 1991, we retain the flexibility to adjust rates as we see fit, consistent with the ratemaking principles adopted here.[1]

Objections to the Rate Plan

This section considers the general points made by parties opposing the rate plan; we have previously considered and resolved many of their suggested specific alternative rate measures in previous sections.

These criticisms fall into two broad categories: those that imply that adoption of a rate plan somehow eliminates -- or at least vitiates -- our responsibility to set just and reasonable rates; and those that either implicitly or explicitly promote Shoreham operation and/or mothballing.

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[1] The ordering paragraphs and Appendix A specify the details for implementing the approved rate plan.

The first argument proceeds on the premise that we have somehow abdicated our ratemaking responsibilities in allowing the two additional fixed rate increases and that we have effectively guaranteed annual rate increases of up to 5% (and prejudged rate issues) for the remainder of the 1990's.

Our decision here sets just and reasonable rates at specific levels through November 1991, and establishes a framework for rate decisions beyond that date. The near-term rate increases include significant ratepayer protections -- LILCO is limited to two additional 5% increases, and there is a total cap on equity earnings more than 50-70 basis points above the allowed returns. Indeed, the near-term increases we adopt here are nearly identical in concept to the multi-year rate plans (second/third stage filings, settlements, moratoriums, etc.) that we have approved for many utilities over the last several years. We have retained our authority to examine the prudence of all capital additions and expenditures in this period and we may defer rate recognition of extraordinary items. A LILCO Rate and Power Supply Task Force within the Department will carefully monitor these vital features of LILCO's operations.

Second, our decision here represents a beneficial tradeoff between limited, short-term rate increases and greater uncertainty and litigation over the Shoreham issues. By accepting staff's proposed rate plan, we are reducing the uncertainty -- and cost -- that continued litigation promises.

It bears noting that one of the principal forces exerting upward pressure on LILCO's rates is the FRA, the balance sheet item representing a discounted stream of revenues necessary for LILCO's financial recovery. Under either the 1988 settlement or the plan adopted here, this feature alone -- *i.e.*, excluding all other factors (construction, fuel, taxes, etc.) affecting rates -- would require *more than* 5% rate increases in the near-term in the absence of rate moderation measures. Thus, in order to limit the increases to 5% it is necessary to defer LILCO's recovery of permitted revenues through the RMC component; this feature helps to constrain rate increases and to eliminate abrupt rate changes. We expect to examine thoroughly LILCO's calculation of its RMC balances, as well as its actual earned returns, and make whatever adjustments are necessary to protect ratepayers from improper charges or imprudent actions.

This decision, moreover, does not prejudge rate issues or guarantee specific rate increases in the later years of the plan.[1] Instead, we are adopting rational ratemaking principles as a guide for these years,[2] based upon long-term forecasts of the utility's revenues and expenses. The target rate increases are not cast in granite, and rate decisions in those years will be based upon thorough reviews of the then-relevant circumstances.

The second general criticism of parties opposed to the plan echoes the above concerns, but does so in support of an entirely different alternative -- the operation (or at least preservation) of Shoreham. The proponents would extend the hearing process to support the "Shoreham-in" scenario; yet they oppose as too costly the rate plans presented by staff and CPB.

The "Shoreham-in" scenario is indeed incompatible with either the 1988 settlement or the February 28 Agreement, and the record here and the record supporting Opinion No. 86-14 demonstrate that this option would lead to larger rate increases for at least 10 years and would not produce a net present value benefit to ratepayers for perhaps 20 years, if ever. The prospect of squeezing further rate concessions from a utility trying to operate a costly nuclear plant in a hostile environment is untenable. This option would necessarily extend the Shoreham controversy and would breathe new life into the litigation sought to be resolved by the February 28 settlement. Therefore, while the licensing of Shoreham appears closer now than it did last year, the finding we made in Opinion No. 88-29 (p. 49) is still apt:

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[1] Of course, having permitted creation of the FRA and established its amount, we will not reconsider that decision in every rate case. We would, however, evaluate well-reasoned proposals for its faster or slower recovery, adjustments to the RMC, and the like.

[2] In this sense, our conceptual framework is identical to that set forth in the Shoreham Ratemaking Principles decision (Opinion No. 86-14).

> However, if the settlement is rejected, the only certainty would be years of litigation, to which Long Island's energy and economic future would be hostage. Shoreham's ultimate fate would depend not only upon the Nuclear Regulatory Commission, but also upon the courts, the results of LIPA takeover efforts, and indeed, the experience of all other U.S. reactors.

Our extensive investigation of Shoreham prudence issues[1] and our familiarity with the licensing of power plants bear out this point. Con Edison's experience with the Cornwall project demonstrates that a federal agency's licensing of a project does not in any way end a controversy.[2] Shoreham could be licensed tomorrow and still face years of litigation challenging its operation. Such litigation would leave plans to meet Long Island's capacity needs in a quandary, sap management attention, drive up expenses, and continue to muddle any equation of the utility's revenue requirement, making establishment of just and reasonable rates extraordinarily difficult, if not impossible. The February 28 Agreement ends a controversy that could otherwise rage for years and allows us to set rates in the context of a reasonably certain set of circumstances.

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[1] Case 27563, Opinion and Order Determining Prudent Costs, Opinion No. 85-23 (issued December 16, 1985).

[2] Abrams v. Public Service Commission, 67 N.Y.2d 205 (1986).

In conclusion, there is no plausible basis for withholding action now on the Shoreham settlement, because the opportunities for achieving net consumer benefits in the next two decades with Shoreham in-service appear to be slight.

Because of the pressing need to resolve promptly the issues raised by the February 28 Agreement, including the proposed transfer of Shoreham and related rate matters, as detailed above, we find that immediate adoption of this Opinion and Order is necessary for the preservation of the general welfare and that compliance with the advance notice and comment requirements of Section 202(1) of the State Administrative Procedure Act (SAPA) would be contrary to the public interest. Accordingly, we shall adopt this Opinion and Order under the emergency provisions of Section 202(6) of SAPA.

The Commission Orders:

1. Subject to the foregoing discussion and to the conditions set forth herein, the Settlement Agreement -- LILCO Issues, dated February 28, 1989 ("February 28 Agreement"), the Rate Moderation Agreement proposed by staff

and agreed to by Long Island Lighting Company (Exhibit 610; "Rate Moderation Agreement"), and the Amended and Restated Asset Transfer Agreement ("Transfer Agreement") filed March 31, 1989, if executed without material change, are approved.

2. Long Island Lighting Company is directed to file proof of the approval by its Board of Directors of the February 28 Agreement, the Rate Moderation Agreement and the Transfer Agreement not later than April 17, 1989.

3. Long Island Lighting Company is directed to file proof, as soon as practicable, of the approval by a majority of its shareholders of the February 28 Agreement, the Rate Moderation Agreement and the Transfer Agreement.

4. Long Island Lighting Company is permitted to file revisions to its tariff, to take effect on December 1, 1989 and December 1, 1990, in an amount and manner consistent with the foregoing. The company shall file a proposed rate design, including supporting marginal and embedded cost studies not later than June 15, 1989 for the rates to become effective December 1, 1989. Unless otherwise authorized by the Commission, the company shall file a proposed rate design not later than May 15, 1990 for the rates to become effective December 1, 1990. Long Island Lighting Company shall contemporaneously serve copies of such proposed tariff revisions on all parties to this proceeding. The tariff amendments shall not take effect until approved by the Commission.

5. The temporary rate increase authorized in the Order Authorizing Temporary Rates, issued February 16, 1989 in these proceedings, shall not become permanent until the February 28 Agreement has become effective and Ordering Paragraphs 2 and 3 herein have been complied with, unless otherwise ordered by the Commission. Ordering Paragraphs 1-5 of the Order Authorizing Temporary Rates remain in full force and effect, until such temporary rates are made permanent or the Commission otherwise orders.

6. The rate increases authorized in Ordering Paragraph 4 herein are conditioned upon the February 28 Agreement becoming effective and compliance by the company with Ordering Paragraphs 2 and 3 herein; if this Agreement is not fully effectuated, as contemplated in this Order, the revenues derived from the increase in rates under Ordering Paragraph 4 shall be subject to refund pursuant to Sections 72 and 113(1) of the Public Service Law.

7. Long Island Lighting Company is authorized to file on not less than one day's notice, to take effect on April 15, 1989, on a temporary basis, revisions to its tariff and its fuel cost adjustment, to incorporate the changes permitted in paragraphs 1(b) and 1(f) of the Rate Moderation Agreement. The company shall begin to use the 3.35 cents per kwh amount specified as the fuel cost component in paragraph 1(b) of the Rate Moderation Agreement in determining its base cost of fuel for purposes of

determining its monthly Fuel Cost Adjustment, effective April 15, 1989. Any such amounts collected after April 15, 1989 shall be deemed temporary rates subject to refund, and shall not become permanent until the February 28 Agreement has become effective and Ordering Paragraphs 2 and 3 herein have been complied with, unless otherwise ordered by the Commission. The requirement of Section 66(12) of the Public Service Law and 16 NYCRR 136.70 that newspaper publication be completed before the effective date of the amendments is waived, but Long Island Lighting Company is directed to file with the Commission, on or before June 1, 1989, proof that a notice to the public of the changes contained in such amendments and its effective date has been published once a week for four successive weeks in newspaper(s) having general circulation in the area affected by the amendments.

8. Long Island Lighting Company shall defer, for disposition in accordance with paragraph 1(f) of the Rate Moderation Agreement, any amounts by which actual fuel costs, computed on a kwh basis, are below the level specified as the new base cost of fuel established pursuant to paragraphs 1(b) and 1(f) of the Rate Moderation Agreement and authorized to become effective in Ordering Paragraph 7.

9. Within 60 days of the effectiveness of the February 28 Agreement, Long Island Lighting Company shall file a plan which identifies all items of plant, equipment

and property at the Shoreham site and specifies those items subject to the decommissioning process. This plan should encompass disposition and salvage of discrete plant items which will be surplussed by the closing of the plant, plans for reuse of any plant or property not used in the decommissioning process and justification for the company to retain or to sell any components of the plant or property. The proposed accounting treatment of the items should be fully explained and the company should justify the use of any cost other than zero of any items which will be reused in the rendition of utility service.

10. Long Island Lighting Company's earnings for the 12-months ending November 30, 1989, November 30, 1990, and November 30, 1991, shall be subject to the earnings cap mechanism and procedures set forth in paragraph 1(a) of the February 28 Agreement, as more specilfically described in Appendix A (Accounting Requirements) herein.

11. As described in the foregoing Opinion, the company is directed to institute deferral accounting, as more fully described in Appendix A, for the following items:

a. The "Base Financial Component" of the "Financial Resource Asset" shall be deferred if recording this item on the balance sheet as a plant account is not permitted by the SEC or the FERC.

b. The "Rate Moderation Component" of the "Financial Resource Asset".

c. Any equity earnings in excess of the "dead band" provisions of the Rate Moderation Agreement.

d. Any Federal income tax benefits of the abandonment loss deduction which are not allocable to stockholders pursuant to the Commission decision in Case 27563, Opinion No. 85-23.

e. Any amounts received by LILCO from a judgment or settlement of litigation relating to Shoreham or other matters described in the February 28 Agreement or the Rate Moderation Agreement.

f. Actual costs incurred attributable to the decommissioning and/or dismantling of Shoreham.

In the event FERC disapproves the recording of item "a" above in a plant or other balance sheet account, the company must file a proposal with the Director of the Office of Accounting and Finance for his approval designating the account to be used. For items b through f, the company is authorized to use the following accounts, as appropriate, to defer the principal and Federal income tax effects of the above items: Account 186, Miscellaneous Deferred Debits; Account 253, Other Deferred Credits; Account 190, Accumulated Deferred Income Taxes; and Account 283, Accumulated Deferred Income Taxes -- Other. The amounts deferred under these plans shall be recorded in separate subaccounts so as to remain readily identifiable. All deferrals and amortizations shall be subject to audit and to review and acceptance by the Commission, as provided for in Appendix A, or the Director of the Office of Accounting and Finance. Any matter concerning the deferrals and/or amortizations which are unacceptable to the Director of the Office of Accounting and Finance shall be presented to the Commission for resolution.

12. Thirty days after the February 28 Agreement becomes effective, the company shall submit for review by the Director of the Office of Accounting and Finance its detailed accounting proposals for the following items:

a. The Shoreham revaluation and write-off, including the Federal income tax benefit deferral and allocation.

b. The establishment of the "Base Financial Component" of the "Financial Resource Asset".

c. The Bokum write-off.

d. The Jamesport/Deferred Tax (excess) accounting.

e. The excess earnings write-off ($16 million).

13. The company, staff and other interested parties are directed to attempt to resolve any differences or disagreements concerning the company's Incentive Ratemaking for DSM/Conservation Programs, filed March 24, 1989, so that the Commission may evaluate such proposal by May 17, 1989, as contemplated by paragraph 2 of the Rate Moderation Plan.

14. Cases 29029, 28204, 28704, 29664 and 29301 are closed.

15. Adoption of this Opinion and Order on an emergency basis pursuant to Section 202(6) of the State Administrative Procedure Act is necessary to preserve the general welfare for the reasons noted above.

16. These proceedings are continued.

By the Commission,

(SIGNED) JOHN J. KELLIHER
Secretary

Accounting Requirements

1. Equity Earnings Cap Mechanism

Pursuant to paragraph 1(a) of the Rate Moderation Agreement, the company's allowed earnings shall be computed subject to an equity earnings cap mechanism on a monthly basis. For the period February 18, 1989 to November 30, 1989, and for the 12-month periods ending November 30, 1990 and November 30, 1991, LILCO shall file and serve on all parties, not later than December 31 of each year, a computation (including underlying data) of its Electric Department earned rate of return on common equity showing whether excess earnings have accrued. Interested parties shall have 30 days to review the calculations and inform the company if differences exist. If there is a disagreement, a conference will be convened in an effort to resolve the disagreement. If no agreement can be reached within 10 business days, the parties will submit their proposals to the Commission for resolution.

If the company has earned a return on common equity in excess of that allowed in the Rate Moderation Agreement for any of the periods described above, the company will defer, for later disposition, the revenue requirement equivalent of the excess earnings on its books.

The Electric Department earnings to be used in the foregoing calculation shall be computed in a manner consistent with paragraph 1(a) of the Rate Moderation Agreement. Such calculation should include an adjustment of earnings to exclude the effect of the variance of actual inflation from the assumed inflation on non-fuel operation and maintenance expense projections contained in Appendix A, Schedule 2 of the Rate Moderation Agreement. The earnings calculation should also exclude the effect of the variance of actual expenses, from the levels assumed in the Agreement, incurred for the removal of asbestos and costs associated with the results of the approved DSM/Energy Conservation Plan. Further, earnings realized should also be adjusted to exclude actual interest expense, property taxes and preferred dividend requirements to the extent that those amounts vary from the amounts assumed in the Agreement. The earnings used to determine the extent to which the return has exceeded the 50-70 basis point cap above the allowed returns should be adjusted to add back any amounts by which the earnings have been reduced for executive compensation plan expenses for which the Commission has specifically disallowed rate recovery. Such amounts should be disclosed in the company's supporting information in order to provide a continuing audit trail. Finally, the 50-70 basis point cap above allowed returns should be adjusted consistent with Commission determinations concerning demand-side management and load reduction programs.

For purposes of determining the proper earnings base upon which the company is entitled to an opportunity to earn a return, the company should reduce the base by any non-utility plant and investments, any historical amounts related to Bokum, Shoreham prudence adjustments, Nine Mile 2 prudence adjustments, Jamesport prudence adjustments, the revaluation adjustment related to the effectiveness of the Rate Moderation Agreement, the excess earnings adjustment, any stockholder tax benefits recorded or to be recorded in connection with any of the foregoing, and any other investment or expenditure for which the Commission has specifically denied rate recovery. The company should also provide an historical analysis to support the monthly contribution to earned return created by the seasonal pattern of electric sales, which will be used to determine the equity cap on a monthly basis.

2. Deferred Revenues

In order to effectuate the intent of the Rate Moderation Agreement, the company shall defer, for later collection, an amount of electric revenues consistent with the statements and assumptions concerning the "Rate Moderation Component" of the "Financial Resource Asset," as described in the Rate Moderation Agreement and its appendices. LILCO should submit its estimates of deferred revenues for the ratemaking periods ended November 30, 1989, November 30, 1990, and November 30, 1991, by May 15, 1989, October 31, 1989 and October 31, 1990, respectively.

The company shall also submit a calculation of the final deferred revenue balance for each of the three ratemaking periods, reflecting any necessary adjustments, including those required by paragraphs 1(a) and 1(f) of the Rate Moderation Agreement for excess earnings and deferred fuel savings, by December 31, 1989, December 31, 1990 and December 31, 1991, respectively. The deferred revenue balance will be increased as a result of lower earnings only if LILCO can demonstrate that the lower earnings were caused by necessary and material increases in its operating expenses.

Interested parties will have 30 days to review each LILCO submission and to inform the company if differences exist. If there is a disagreement, a conference will be convened in an effort to resolve the disagreement. If no agreement can be reached within 10 business days, the parties will submit their proposals to the Commission for resolution.

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

CASE 29484 and 88-E-084 - Proceedings on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Long Island Lighting Company for Electric Service

Harold A. Jerry, Jr., Commissioner, concurring:

This settlement is, of course, sheer folly. Despite considerable effort over the years, I have been unable to effect a more rational result.

It is not correct to state that closing Shoreham will result in lower rate increases than opening it. The two scenarios are not compatible. Opening Shoreham would solve many problems. Closing Shoreham creates many problems that will be expensive to resolve.

I concur only because I have lost hope of attaining a better solution.

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

CASE #29484 - Proceeding on motion of the Commission as to the
#84-E-084 rates, charges, rules and regulations of Long Island Lighting

JAMES T. McFARLAND, Commissioner, dissenting:

The best disposition of this so-called "Shoreham deadlock", as far as the LILCO customer and the economy of Long Island is concerned, would be for the New York Power Authority (NYPA) to buy out Shoreham and operate it. NYPA is a seasoned operator of two nuclear plants, as well as other energy facilities. It has an excellent track record for safety.

Power Authority ownership and operation would allow Long Islanders to get the benefit of the tax-exempt advantages provided by the Authority and which are enjoyed by all the other geographic areas of the state...except Long Island. My rough estimates are that this alternative would provide at least $450 to $500 million worth of operational savings a year. Not rate increases, savings. This would translate into substantial rate savings for the consumer. Instead we are saddling LILCO's customers with a decade-long burden of substantial rate increases together with an energy supply system of questionable reliability.

Why? What is this "Shoreham deadlock"? It is nothing more than a euphemism for the consequences of the political exploitation of anti-LILCO sentiment and the fear on the part of some uninformed people about the safety of nuclear power. Those consequences are a severe energy crisis facing Long Islanders and their economy and the near bankruptcy of the utility that serves them. These consequences have been produced by nearly five years of litigation, confrontation and vigorous opposition to the NRC licensing process. This Commission could have dealt directly and constructively with these problems but chose not to, deferring instead to public opinion and the political process.

Is Shoreham unsafe? There has never been one word of concern on this Commission that an operational Shoreham would present an unreasonable safety risk to the people on Long Island. Not one Commissioner ever mentioned it. You can search the record of all the proceedings in vain for any evidence on the subject. We are even privileged to have as our Chairman an individual who gained considerable knowledge and experience about the operation of America's nuclear power program during five years as a member of the Nuclear Regulatory Commission (NRC). He has not contended the plant is unsafe. Nor, as I observed, has any other Commissioner.

Furthermore, it is the NRC to whom Congress has entrusted the solemn duty and grave responsibility of insuring our nuclear power plants operate safely and efficiently. Not this Commission. If licensed by the NRC, Shoreham will be no more of a safety risk than any of the six other nuclear power plants licensed and operating in the State of New York.

The NRC will issue a license only after it has been assured and satisfied that a safe evacuation of an area within 10 miles of the plant can be carried out if ever required. All of Long Island does not have to be evacuated. Nor does all of Westchester nor all of Oswego County or Monroe County or wherever else a nuclear power plant is located in this state. It is deceptive and irresponsible to suggest otherwise to the Long Island citizens.

Nor can the plant explode. Its uranium is not enriched sufficiently to support a nuclear explosion. In the event of a fire or meltdown similar to Chernobyl or Three Mile Island, the plant has a 4 ft. thick re-enforced concrete containment structure which would, as it did at Three Mile Island, protect the public from any radiation dangers.

No, the safety of Shoreham is not the issue here. The real issue is whether this Commission should be guided in its utility regulating functions by public opinion, in this case, erroneous, misguided and false public opinion. I say not. I am sure my colleagues would agree that ratemaking by public referendum would be folly. Where, I ask, is the distinction in this case?

On at least two occasions an experienced and knowledgeable Administrative Law Judge has found that, in the long term, the opening and operation of Shoreham would be in the best interests of Long Island and its ratepayers. His latest discussion is attached.

I am certain that if our intrepid and able Staff had dedicated its energies and resourcefulness to drafting an open-Shoreham scenario, the results ratewise and energywise would have been better than this Decision. At the very least we would have had Shoreham's 809 megawatts, possibly even on time for this summer's peaks. But alas, it was directed to justify the close-Shoreham goal.

The bitter irony is that neither this Commission nor those interests responsible for the five years of delay, uncertainty, energy crisis and fiscal calamity will bear any of the financial burden of the "Shoreham deadlock". That burden will fall wholly on those who can best be described as innocent bystanders to this sorry Shoreham saga. It is they who will finance every extra penny this Settlement will cost and endure every privation the closing of Shoreham might produce, even the possible loss of jobs and security. I am referring, of course, to the Long Island citizen and ratepayer.

The final irony is that the Consumer Protection Board reportedly stated that, "The Cuomo administration's position is that the LILCO-PSC Agreement is much too generous". Ah, politics. Now it is the PSC's Agreement! If the Governor is against these rate increases which are necessary to persuade LILCO to abandon Shoreham, does that mean he is now in favor of Shoreham's operation? Could be. On the premise that anything is possible in politics, I intend to take up with the Governor and the Legislature my proposal that the best deal for the ratepayers and the economy of Long Island would be for the Power Authority to take over and operate the Shoreham facility.

In the meantime, I must say I dissent from all the Orders contained in this Decision, particularly the approval of the Agreement of February 28, 1989, approval of the asset transfer agreement, and the Commission's failure to make permanent the temporary rate increases of February 18, 1989. I believe our own Regulations pertaining to the procedure in rate cases were not complied with. Neither was Part 31 relating to the procedure for Commission approval of asset transfers by utilities. Nor was any waiver of these Regulations granted or petition for any waiver filed with this Commission.

In consequence, I believe this Decision to be arbitrary, capricious and unreasonable.

Attachment to Dissent
Excerpt from Analysis by
Administrative Law Judge Robinson

Cases 29484 and 88-E-084

VI. DISCUSSION

The undersigned had urged disapproval of the earlier settlement, finding it contrary to the public interest because it entailed scrapping Shoreham. This new agreement of course suffers from the same crucial defect, hence rejection is again recommended. However, such a view of the matter was obviously not shared by the Commission in acting on the 1988 settlement, and I will refrain from belaboring it.[1]

The 1988 settlement also met with much public opposition based on its rate provisions. The Commission found its rate provisions, however, to be a positive rather than a negative feature of the settlement, since the rates were designed to restore LILCO's financial health, which the Commission held to be in the public interest and likely to save ratepayers money in the long run.

The present agreement, though also widely criticized for its perceived rate ramifications, on its face ostensibly contains no rate prescriptions and leaves the Commission free to employ its discretion in establishing rates. This might seem preferable at first blush. But four fundamental points must be made.

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[1] The pro-Shoreham position was of course argued by a number of parties who did not participate in the proceedings on the 1988 settlement. However, their arguments here do not add anything material that was not brought to the Commission's attention in the analysis concerning the 1988 settlement.

First, whereas the language does seem plainly to leave rates up to the Commission -- and the agreement has been touted to the public as so doing -- in reality rates are not left up to the Commission, because as LILCO openly explained, the agreement is a nullity unless a rate plan is approved along specified lines and by a specified date. In a sense, LILCO is reserving to itself now the last word on whether the rate plan approved by the Commission is an adequate bargain for Shoreham's closure. The Commission should look with disfavor upon agreements that don't mean what they say.

Second: one of the saving graces of the 1988 settlement was that its rate arrangements had the support of a multiplicity of major parties, eliminating considerable potential future disputation and rancor, and enhancing the degree of desirable certainty attaching to the year-by-year follow-through on those rate arrangements. In addition, the rate arrangements under the 1988 settlement enjoyed some (albeit grudging) acceptance, because it was clear that the rates were a quid pro quo for closing Shoreham, which so many Long Islanders want. The new rate plan, in contrast, is supported only by LILCO and staff; and the connection between the rates and Shoreham's closure has furthermore unfortunately been muddied because the February 28 agreement was presented to the public as leaving rates unresolved.

Third: Staff, LILCO, and CPB had all stoutly insisted that the rate levels, and resulting financial parameters, provided by the 1988 settlement were the minimum needed to restore LILCO to financial health on an acceptable schedule, and that rate levels and financial parameters any lower would be disadvantageous to ratepayers and contrary to the public interest. The Commission accordingly rendered a determination to that effect. Now we are being told that rate levels and financial parameters materially lower are acceptable. The record on the 1988 settlement perforce casts doubt on whether the rates now being proposed are indeed the best possible deal for ratepayers in the long run.[1]

The fourth point relates to due process and the fundamentals of the Commission's ratemaking role. This is another respect in which the new agreement raises problems that its predecessor did not.

To begin with, the complaints of various parties concerning the procedures employed here have clear merit. By any measure, this proceeding has been conducted on an exceedingly tight schedule, which has greatly curtailed the parties' ability to grapple with the issues, compared to what would obtain in a more normal regulatory proceeding. Staff, of course, dismisses all these complaints by saying, in effect, that the outcome here is a foregone conclusion, namely Commission ratification of a rate plan already approved in Opinion 88-29. It is submitted, however, that the matter is not so simple.

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[1] Of course in theory if the Commission feels the rates proposed by LILCO and staff are lower than what the public interest requires, it can raise them. However, the ramifications of this proposition scarcely need to be laid out. It will suffice to say that the degree of public acceptance that would have obtained under the 1988 settlement would be eroded even further.

In the 1988 settlement, the rate arrangements were expressly and forthrightly part of a larger package that the Commission was required to approve or reject _in toto_. Given that, it was appropriate and reasonable for the Commission to assess the settlement on an overall basis, determining whether the package as a whole was in the public interest, based on global considerations and without being overly concerned about the details of how all the precise numbers in the package were arrived at. And it was likewise reasonable and appropriate for the Commission to require parties to litigate the issue from the same perspective.

The situation under this new agreement is different. While as explained, the agreement does not actually give the Commission the ratemaking freedom which its words purport to do, yet at the same time it cannot be taken to constrain the Commission in the "take-it-or-leave-it" fashion that the 1988 settlement did. And while the ambit for Commission discretion is effectively limited, to allow any at all is akin to opening Pandora's box; to removing the finger from the hole in the dike. Once the Commission is called upon to exercise discretion in establishing the details of a rate scheme, it cannot do so by the sort of global overview by which it approved the 1988 settlement. Instead, when approving the separate elements of a complex rate scheme which the parties are disputing, the Commission is bound to have a rational basis for its determinations, and to provide parties with a reasonable opportunity to examine, address and effectively contest all the elements of the rate scheme.

Normally, we take eleven months to set rates for one year. Here it is proposed to act in less than one month to set rates for two-and-a-half years and to take action which will drive rate levels for many years beyond. It is wrong to do this with anything less than the attention to detail employed in a routine rate case; to reduce practically to nought the parties' opportunity to conduct discovery, investigate and analyze, and craft well-considered proposals; to use, in short, a meat-axe rather than the customary scalpel.

It is recognized that LILCO -- or so it says -- insists that the Commission do just that, if the Company is to live up to its written agreement with the Governor to abandon Shoreham, which the Commission may consider desirable. But query whether, after presenting us with an agreement that doesn't mean what it says, LILCO now really does mean what it says in promising to foreswear that agreement if it doesn't get a certain kind of rate plan by a certain date. One may doubt that LILCO will be so inflexible and is really so ready to operate Shoreham. Indeed, LILCO now seems willing to go to great lengths in order to dump Shoreham. The Commission, it is submitted, should not compromise its adherence to fairness and due process in pursuit of the same objective.

In a normal rate proceeding, we comb carefully through a utility's rate year projections of expenses, revenues, rate base, etc. There has not been time for such scrutiny here, and we are asked to set rates not for one year but for two-and-a-half. The hearing process with respect to the first year's projections was greatly truncated, and for the remaining period it was effectively nonexistent. We have had none of the normal litigation testing the econometric models by which sales are projected; none of the normal litigation over depreciation expense, Federal Income tax calculations, wage costs, pension accruals, and all the other complex subjects normally explored in rate cases. There has been no litigation worthy of the name concerning a fair rate of return, normally a subtle area, and especially difficult here.

Yet more troubling is the hurried insertion of a $4 billion item onto LILCO's balance sheet which, as already stressed, will greatly affect rates for many years to come. One would think that such an action would be preceded by thorough litigation, at least as to the derivation of the precise amount. The Commission didn't have to worry greatly about that under the old settlement because, as explained, the BFC was part of a take-it-or-leave-it package. Now it is not, and it seems inconceivable to take such momentous action, involving such a huge amount of money, without giving interested parties a reasonable opportunity to test all the complex assumptions involved.[1]

Be that as it may, it is submitted that if the Commission does wish to see the February 28 agreement effectuated, it may be possible to achieve that without sacrificing sound regulatory practice.

The basic rate plan of the 1988 settlement, while it was again approved as part of a larger package, was also clearly viewed by the Commission as reasonable and in the public interest on its own merits. The record, of that phase of the proceeding as well as the present one, provides ample support for the proposition that a rate plan along the basic lines of the settlement's -- and along the basic lines of the LILCO-Staff plan here -- is in the public interest. Even if due process requirements and the need for rational bases for Commission determinations bar the adoption of all the details being proposed, they do not bar the immediate adoption of the proposed plan as a framework for setting future LILCO rates. The Commission can render a determination adopting the LILCO-Staff plan as a framework, indicating that it approves the concepts underlying it, subject to adjustments to be determined after further hearings. The Commission can also properly render determinations now rejecting the major proposals that would modify the LILCO-Staff plan, such as Suffolk's proposal to reduce rates using funds otherwise earmarked for dividends. The Commission can also properly make permanent the 5.4% rate increase, approved in February on a temporary basis, as the first installment of a multi-year rate plan.[1] Still further, the Commission can

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[1] Putting it another way, the original BFC was a negotiated figure, and in accepting it for purposes of the 1988 settlement, the Commission certainly was not making a finding that the BFC amount -- in isolation -- was right. The rightness of the figure is perforce now in issue, and the record is far too skimpy to permit its resolution in a careful, responsible, workmanlike manner.

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[1] Although staff has not completed the auditing for which the Commission said it would extend its permanent rate deliberations by three months, the ramifications of adopting a multi-year rate plan in the present context can be deemed sufficiently different from those previously obtaining that the kind of auditing originally contemplated might be modified -- bearing in mind that any errors implicit in the 5.4% first stage increase can be rectified in setting the further stages; that the rate plan in question now is geared more toward meeting financial integrity requisites than

-Continued-

modify LILCO's fuel adjustment clause to relieve the company of having to absorb the capacity charges it incurs in meeting summer 1989-90 short term capacity needs.

Such determinations by the Commission, at this time, would resolve the key issues and the key uncertainties with regard to LILCO's financial health, and hence should put LILCO firmly on the path toward financial recovery that the company and staff are seeking (and which the Commission itself sought in approving the 1988 settlement). To allow for further litigation of the specific numbers and details should not, to a rational observer (and Staff's comments notwithstanding), materially compromise the salient objective. Meanwhile, once the 5.4% February rate increase has been confirmed, there would be up to eight months to accommodate further litigation, since nothing would be required to happen before December 1989.

The booking of the BFC would be expected around June under the LILCO-Staff plan. However, LILCO would not be prejudiced by a postponement because of the escalation

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-Continued-

toward conventional revenue requirements anyway; and that in any case staff's preliminary audit had shown a conventional revenue requirement approximating the 5.4%. Finally here, the 5.4% first year increase was not really a focus of the parties objecting to the overall LILCO-Staff rate plan; the only substantive proposal affecting the first year increase was Suffolk's dividend idea which, as noted, can readily be rejected.

provision; alternatively the Commission could allow the BFC to be booked subject to subsequent adjustment, perhaps meanwhile expressly stating that because it approves the conceptual basis for the BFC, those subsequent adjustments cannot be expected to be large. Indeed, the Commission could even indicate an intention to allow LILCO to collect rates for the first ten years (or any other specified period) as though the BFC were not adjusted, with any adjustments being accommodated in the subsequent years.[1] This kind of action would go far toward eliminating the residuum of uncertainty that staff fears in the event the Commission does not now approve all the details of a rate plan.

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[1] In fact, it is important to bear in mind that the Commission would in no sense be doing something irrevocable in allowing LILCO to book the BFC -- it will be subject to adjustment at any time throughout its forty year amortization period.

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

LILCO Reliability - 1989

The attached is the NYPSC and NY State Energy Office's projected summer 1989 capacity summary. As stated in Chairman Bradford's testimony before the Committee on April 13, 1989, we project that LILCO will have installed capacity, plus purchases and reductions from load management, sufficient to meet its required 18% reserve margin this summer.

The DOE presentation at the hearing ignores planned supply additions to LILCO's system as follows: the Brookhaven gas turbines (240 MW's), new IPP's (70 MW's), and additional DSM (73 MW's). Also increased transmission capacity to Long Island (700 MW to 800 MW) allows for more capacity purchases from other utilities beyond the current 225 MW from NYSEG.

LILCO is adding the equivalent of 396 MW of new capacity on Long Island by August 22. As shown in the attached table, LILCO should meet a 18% reserve margin in June, and by August, should have a 23% reserve margin. Thus, LILCO would be able to meet a 1989 demand 5 percent greater than its forecast and be able to maintain a 18 percent reserve margin.

The DOE presentation does not address the potential supply additions to the Northeast, New York or Long Island which should occur through IPP's and an aggressive set of DSM programs. LILCO in their bidding resource plan assumed that they could maintain an 18 percent reserve margin through 1998 by IPP purchases (378 MW's), DSM programs (280 MW's), and new purchases from NYPA (349 MW's).

TABLE 1

LILCO
1989 SUMMER INSTALLED CAPACITY SUMMARY

	WITHOUT COMBUSTION TURBINES (AS OF JUNE 15)	WITH NEW COMBUSTION TURBINES (AS OF AUGUST 22)
INSTALLED CAPACITY	3842	3842
BROOKHAVEN CT'S	0	240
FIRM IMPORTS & PURCHASES		
NINE MILE 2	194	194
NYPA	140	140
L.I. MUNICIPALITIES	36	36
IPP'S	43	93
NYSEG PURCHASE	225	225
TOTAL IMPORTS & PURCHASES	638	688
AVAILABLE CAPACITY	4480	4770
LILCO LOAD	3878	3878
LESS LOAD MANAGEMENT	-109	-109
NET LOAD	3769	3769
NYPP RESERVE REQUIREMENT (18% OF NET PEAK LOAD)	678	678
TOTAL CAPACITY REQUIRED	4447	4447
SURPLUS (DEFICIENCY)	33	323

Notes:

1. Figures as of August 22 reflect 50 MW of additional independent power generation scheduled to be in-service August 1.

APPENDIX V

Nuclear Regulatory Commission License Transfer

J BENNETT JOHNSTON, LOUISIANA, CHAIRMAN

DALE BUMPERS, ARKANSAS
WENDELL H FORD, KENTUCKY
HOWARD M METZENBAUM, OHIO
BILL BRADLEY, NEW JERSEY
JEFF BINGAMAN, NEW MEXICO
TIMOTHY E WIRTH, COLORADO
KENT CONRAD, NORTH DAKOTA
HOWELL T HEFLIN, ALABAMA
JOHN D ROCKEFELLER IV, WEST VIRGINIA

JAMES A McCLURE, IDAHO
MARK O HATFIELD, OREGON
PETE V DOMENICI, NEW MEXICO
MALCOLM WALLOP, WYOMING
FRANK H MURKOWSKI, ALASKA
DON NICKLES, OKLAHOMA
CONRAD BURNS, MONTANA
JAKE GARN, UTAH
MITCH McCONNELL, KENTUCKY

DARYL OWEN, STAFF DIRECTOR
D MICHAEL HARVEY, CHIEF COUNSEL
FRANK M CUSHING, STAFF DIRECTOR FOR THE MINORITY
GARY G ELLSWORTH, CHIEF COUNSEL FOR THE MINORITY

United States Senate
COMMITTEE ON
ENERGY AND NATURAL RESOURCES
WASHINGTON, DC 20510-6150

May 2, 1989

The Honorable Lando W. Zech, Jr.
Chairman
Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, Maryland 20555

Dear Chairman Zech:

As you are aware, the February 28, 1989 agreement between the Long Island Lighting Company (LILCO) and the State of New York concerning the transfer and decommissioning of the Shoreham plant recently received all of the required approvals to go into effect, with the exception of final shareholder approval. The agreement assumes that NRC will grant a request from LILCO to terminate the operating license for Shoreham, grant a possession-only license for Shoreham, and transfer the license from LILCO to the Long Island Power Authority for purposes of decommissioning. Under the terms of the agreement, LILCO would make these requests to NRC following shareholder approval of the agreement.

The terms of the Shoreham agreement speak of this license transfer as if it is merely a formality. It is my understanding, however, that NRC has strict standards that would govern such a transfer. I am interested in learning what the process will be for granting approval for transfer of the license. Specifically, I am interested in receiving answers to the following questions.

1. What are the Commission's regulations for such a transfer? Do the regulations actually anticipate such a transfer; that is, do the regulations ever contemplate transfer of a license for purposes of decommissioning, or would the Commission be charting new territory in such a licensing proceeding? Would this licensing process follow a predetermined approach or is each such licensing process unique?

2. What are the requirements for transfer of an operating license? Who would submit an application for transfer? Would both LILCO and LIPA submit a license application?

3. What does the adjudicatory process entail? Would a license transfer actually be an amendment to the existing license for Shoreham, or would a whole new licensing process begin? If a public hearing is required, could the license transfer take

14. Under the terms of the Shoreham agreement, Long Island Power Authority would contract with the New York Power Authority for decommissioning of the reactor. As I understand it, LIPA itself would not have the technical expertise and resources to carry out this work. How would this affect NRC's review of a license transfer? Does the Commission generally believe it would be acceptable that a licensee not possess its own technical expertise so long as that expertise is obtained through contract? Are there any precedents for this; that is, are there any current NRC licensees similar to Long Island Power Authority who obtain all of their technical expertise by contract?

15. Has the Commission ever before considered a request to transfer a license? What is the Commission's past experience in this area? Please describe any requests that are somewhat similar.

I would appreciate your prompt response to these questions.

Sincerely,

J. Bennett Johnston

J. Bennett Johnston
Chairman

JBJ/mlw

place before the hearing is completed?

4. What are the opportunities to intervene in this licensing process?

5. Who would be eligible to intervene? Would all of the parties previously involved in the Shoreham adjudicatory process be eligible to intervene? How would the New York state and local governments be affected? Would they be eligible to intervene even though they were thrown out of the earlier Shoreham adjudicatory process? Would new parties not previously involved in the Shoreham proceeding be eligible to intervene?

6. Would the federal government be eligible to intervene in a licensing proceeding? Would ratepayers be eligible to intervene is a licensing proceeding?

7. How does the Commission judge the fitness of the proposed new licensee? Are there specific criteria that must be met before the license transfer would be approved? What are they?

8. What is the set of applicable regulations that would have to be met before a new licensee would be granted a license? Would the set of applicable regulations include those related to financial qualifications?

9. Would the Commission have to approve a decommissioning plan for Shoreham prior to transfer of the license? What level of detail is required for a decommissioning plan? Does permission to decommission the plant involve a separate licensing process from the transfer of the license?

10. Has the the Commission received any inquiries from the Long Island Power Authority (or the state of New York or the New York Power Authority, in its behalf) about the licensing process involved in transfer of the Shoreham license?

11. Does the Commission have any knowledge at this point of how LILCO and/or Long Island Power Authority will pursue the license transfer? Has either of these entities communicated to the Commission its intentions for submitting a license application?

12. Does the Commission have any knowledge of the qualifications of Long Island Power Authority to hold a license for Shoreham?

13. At this time, it is my understanding that the Long Island Power Authority does not have statutory authority to purchase Shoreham and that there is a bill pending in the New York state legislature to amend LIPA's charter to allow the purchase. How would this affect NRC's review of a request to transfer the Shoreham license?

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

CHAIRMAN

May 19, 1989

The Honorable J. Bennett Johnston, Chairman
Committee on Energy and Natural Resources
United States Senate
Washington, D. C. 20510

Dear Mr. Chairman:

I am responding to your letter of May 2, 1989, in which you asked a number of questions concerning the Nuclear Regulatory Commission's (NRC) licensing process as it would apply to a transfer of the license for the Shoreham facility and the authorization to decommission that facility. LILCO and the other principals involved in the potential transfer and decommissioning have not discussed with NRC the details of such proposals. Nevertheless, in our enclosed responses, we have attempted to answer your questions as fully as we can in the absence of such details.

Please contact me should you have further questions on this matter.

Sincerely,

Lando W. Zech Jr.
Lando W. Zech, Jr.

Enclosures: As stated

cc: Senator James A. McClure

RESPONSES TO QUESTIONS POSED BY SENATOR JOHNSTON'S LETTER OF MAY 2, 1989

QUESTION 1. What are the Commission's regulations for such a transfer? Do the regulations actually anticipate such a transfer; that is, do the regulations ever contemplate transfer of a license for purposes of decommissioning, or would the Commission be charting new territory in such a licensing proceeding? Would this licensing process follow a predetermined approach or is each such licensing process unique?

ANSWER

Sec. 101 of the Atomic Energy Act of 1954, as amended, requires a license from NRC in order for any person to transfer, acquire, possess, or use a utilization facility as defined in the Act. This requirement is reflected in 10 CFR 50.10 of the Commission's regulations. Accordingly, any transfer of the Shoreham facility from the Long Island Lighting Company (LILCO) to any other person (legal entity) requires license approval from the NRC both for LILCO to transfer and for the transferee to acquire, possess, or use the facility. Ordinarily, such transfer and licensing would be accomplished by a single amendment to the existing license.

General provisions relating to facility license amendments are contained in 10 CFR 50.90, 50.91 and 50.92. Since the authorization also involves the transfer of a license and/or rights under such license, the authorization would also be covered by 10 CFR 50.80, implementing Sec. 184 of the Atomic Energy Act. That section requires that information be submitted to the NRC with respect to the identity, and technical and legal qualifications, of the transferee.

The regulations do not explicitly address transfer of a facility for the purposes of decommissioning. However, 10 CFR 50.90, 50.91, 50.92, 50.80, and 50.82 cover license amendments, license transfers, and license termination and decommissioning for all purposes. The substantive standards for determining the acceptability of decommissioning are set forth in the Commission's rules governing decommissioning published in the Federal Register on June 27, 1988 (53 FR 24018).

The regulations in 10 CFR Part 50 and Part 2 (the Commission's Rules of Practice) provide general guidance governing a wide range of potential proposed license amendments and have been adequate for the power reactor decommissioning proceedings thus far considered (Humboldt Bay, LaCrosse). The NRC has not previously had a proceeding involving (1) a transfer of a facility from an organization authorized to operate the facility to another entity for the purpose of decommissioning or (2) decommissioning of a facility licensed to operate at full power but which has had only limited low power operation. For these reasons, the Commission might well face issues of first impression with regard to the particular license transfer and decommissioning that might be proposed for Shoreham. On the other hand, the actual licensing process for such a license transfer/amendment and decommissioning authorization should follow the approach established by existing regulations on license amendments/transfer and decommissioning.

QUESTION 2. What are the requirements for transfer of an operating license? Who would submit an application for transfer? Would both LILCO and LIPA submit a license application?

ANSWER

The transaction involved in the postulated Shoreham transfer is not limited to transfer of control or license rights under 10 CFR 50.80, but involves the complete transfer of ownership and physical possession of the facility from LILCO to LIPA. The regulations do not explicitly address the standards for authorizing the transfer of actual possession of a facility. However, the principal requirement would be that there be a recipient licensed by NRC to possess the facility and that the process of transfer and possession provides reasonable on assurance of adequate protection for public health and safety and common defense and security. LILCO would be required to submit an application to transfer and LIPA would be required to submit an application to possess (and to decommission or otherwise use) the facility. It may be that a combined application could be submitted or that one application may incorporate by reference substantial portions of the information contained in the other. 10 CFR 50.31 and 50.32.

QUESTION 3. What does the adjudicatory process entail? Would a license transfer actually be an amendment to the existing license for Shoreham, or would a whole new licensing process begin? If a public hearing is required, could the license transfer take place before the hearing is completed?

ANSWER

The transfer would require an amendment to the existing license. For reactor facility license amendments, Commission regulations require that the applicant and "any person whose interest may be affected by the proceeding" be afforded an opportunity to request a hearing. Only if the Commission concludes that the amendment proposed involved "no significant hazards consideration" could the Commission issue an immediately effective license amendment and grant a hearing thereafter. 10 CFR 2.105.

QUESTION 4 What are the opportunities to intervene in this licensing process?

ANSWER

As indicated above, as a general matter, "any person whose interest may be affected by the proceeding" may request a hearing or permission to intervene in the proceeding on the license amendment to transfer the license. 10 CFR 2.105. In order to be permitted to intervene, the petitioner must satisfy the standards of 10 CFR 2.714 relating to timeliness, standing, and contentions. See also 10 CFR 2.4(o) and (d).

QUESTION 5. Who would be eligible to intervene? Would all of the parties previously involved in the Shoreham adjudicatory process be eligible to intervene? How would the New York state and local governments be affected? Would they be eligible to intervene even though they were thrown out of the earlier Shoreham adjudicatory process? Would new parties not previously involved in the Shoreham proceeding be eligible to intervene?

ANSWER

The parties previously involved in the Shoreham proceeding were not dismissed from participation in NRC proceedings other than the proceeding involving the initial issuance of an operating license for Shoreham. Neither were they barred from further participation in other NRC proceedings. They would, however, again be required to establish a basis for participation either as interested governments under 10 CFR 2.715(c) or as intervenors under 10 CFR 2.714.

Persons who have not previously participated in Shoreham licensing proceedings would also be eligible to intervene provided that they satisfied the standards of 10 CFR 2.714 or may participate under 2.715(c).

QUESTION 6. Would the federal government be eligible to intervene in a licensing proceeding? Would ratepayers be eligible to intervene in a licensing proceeding?

ANSWER

As a general matter, agencies of the Federal government that have an interest which may be affected by the proceeding are eligible to intervene in NRC licensing proceedings. See 10 CFR 2.4(o) and (d). For example, the United States Marine Corps intervened in the proceeding involving the construction permit application by Potomac Electric Power Company for the proposed Douglas Point facilities. Potomac Electric Power Company (Douglas Point Nuclear Generating Station, Units 1 & 2), ALAB-277, 1 NRC 539 (1975).

The economic interest of a ratepayer has been held to be insufficient to establish standing to intervene as a matter of right in NRC reactor licensing proceedings since concern about rates is not within the scope of the Atomic Energy Act (Kansas Gas and Electric Co. (Wolf Creek Generating Station, Unit 1), ALAB-424, 6 NRC 122 (1977); Tennessee Valley Authority (Watts Bar Nuclear Plants, Units 1 & 2), ALAB-413, 5 NRC 1418 (1977)) or within the zone of interest protected by the National Environmental Policy Act (Portland General Electric Co. (Pebble Springs Nuclear Plant, Units 1 & 2), ALAB-333, 3 NRC 804 (1976)). Adjudicatory boards may grant intervention as a matter of discretion, exercised according to specific Commission guidelines, where it is determined that the petitioner will make some contribution to the proceeding. (Portland General Electric Co. (Pebble Springs Nuclear Plant, Units 1 & 2), CLI-76-27, 4 NRC 610 (1976).

QUESTION 7. How does the Commission judge the fitness of the proposed new licensee? Are there specific criteria that must be met before the license transfer would be approved? What are they?

ANSWER

10 CFR 50.57, Issuance of Operating License, requires that NRC find that applicants are technically qualified, and that applicants other than electric utilities are financially qualified, in order to issue an operating license. See also 10 CFR 50.40. These standards would apply to an amendment involving a transfer to a new licensee. 10 CFR 50.92.

NRC guidance concerning technical qualifications is contained in NUREG-0800, the Standard Review Plan, Sections 13.1 (Management and Technical Support Organization), 13.4 (Operational Review), and 13.5 (Administrative Procedures). Copies of these sections are enclosed. These are the criteria used by the NRC staff in determining the technical qualifications of a license applicant to conduct the proposed activity.

QUESTION 8. What is the set of applicable regulations that would have to be met before a new licensee would be granted a license? Would the set of applicable regulations include those related to financial qualifications?

ANSWER

The license issued to LILCO authorizes full power operation. In order to transfer this license to LIPA, LIPA would be required to comply with all regulations applicable to such operation and to demonstrate qualifications to operate the facility, if LIPA intends to operate the facility at full power, as permitted by the current license. Substantive requirements specifically applicable to power reactors are contained in 10 CFR Parts 19, 20, 50, 51, 73, and 140; additional requirements relating to possession of new fuel, spent fuel, and byproduct radioactive materials are contained in 10 CFR Parts 30, and 70. If the specific activities to be carried out by LIPA are more limited than LILCO is currently authorized to conduct, any transfer of the LILCO license to LIPA would have to contain conditions to that effect, and LIPA would have to demonstrate its qualifications and compliance with the set of regulatory requirements that apply to the activities permitted by the transferred license.

Unless LIPA qualifies as an "electric utility" as defined in 10 CFR 50.2, a financial qualification review would be required by 10 CFR 50.33(f) and

50.57(a). Further, LIPA would be required to satisfy the requirements relating to decommissioning funding assurance. 10 CFR 50.33 and 50.75. Other requirements specifically applicable to decommissioning are discussed in response to question 9.

QUESTION 9. Would the Commission have to approve a decommissioning plan for Shoreham prior to transfer of the license? What level of detail is required for a decommissioning plan? Does permission to decommission the plant involve a separate licensing process from the transfer of the license?

ANSWER

If the applicant for the license transfer proposes to operate the facility or to conduct activities but does not request authorization to decommission, the Commission could consider authorizing the license to transfer without first considering and approving a decommissioning plan. A subsequent request to undertake decommissioning would involve a separate license amendment and a separate amendment proceeding. However, if the initial request for transfer proposes transfer for the purpose of decommissioning and seeks authorization to decommission, the steps involved -- transfer of the license by LILCO, possession of the facility by LIPA, change in the license to possession-only status, defueling, and commencement of decommissioning -- could be the subject of a single proceeding.

In the latter case, LIPA would be required to provide a safety analysis of proposed decommissioning activities demonstrating that such activities will be conducted in a manner that adequately assures public health and safety. 10 CFR 50.34. Since these activities will be different from those evaluated in the PSAR and the current FSAR for the Shoreham facility, a new evaluation covering the proposed activities would be required. 10 CFR 50.82 requires that applicants for authorization to decommission submit the proposed decommissioning plan and sets forth the general requirements for the decommissioning plan. The Commission must approve decommissioning plans. Further details concerning the content of the decommissioning plan are provided by Regulatory Guide 1.86, "Termination of Operating Licenses for Operating Reactors." 10 CFR 51.53 requires each applicant for a license amendment authorizing decommissioning to submit an update to the Operating License Stage Environmental Report reflecting any significant new information associated with decommissioning. 10 CFR 51.95 requires the NRC to supplement the operating license stage environmental impact statement or prepare an environmental assessment of the proposed decommissioning, depending on the significance of the environmental issues involved in the decommissioning proposal.

QUESTION 10. Has the Commission received any inquiries from the Long Island Power Authority (or the state of New York or the New York Power Authority, in its behalf) about the licensing process involved in transfer of the Shoreham license?

ANSWER

The NRC has received no formal inquiries from LIPA, NYPA, or New York State about the licensing process involved in transfer of the Shoreham facility. There have been inquiries from other people associated with New York State requesting information concerning NRC regulations that would govern the transfer of the Shoreham facility. One such inquiry was by phone from a staff member of the New York State Legislature. Another was from Commissioner McFarland of the New York State Public Service Commission. A copy of Mr. Stello's letter of March 21, 1989 to Commissioner McFarland is attached.

QUESTION 11. Does the Commission have any knowledge at this point of how LILCO and/or Long Island Power Authority will pursue the license transfer? Has either of these entities communicated to the Commission its intentions for submitting a license application?

ANSWER

The NRC has received no specific information on how LILCO and LIPA plan to pursue the postulated license transfer other than a copy of the agreement documents and the limited statements made to the Commission at the public meeting on April 17, 1989, by LILCO's Chief Executive Officer, Dr. W. Catacosinos. Dr. Catacosinos indicated that if the agreement becomes final

> "[LILCO is] obligated to apply to [the NRC] for permission to transfer the plant to an agency of the State of New York. The state then will be in the position of having to make a public policy decision concerning the future of the plant located in a geographic area that is clearly short of energy."

QUESTION 12 Does the Commission have any knowledge of the qualifications of Long Island Power Authority to hold a license for Shoreham?

ANSWER

The Commission has no information at this time concerning LIPA's qualifications to hold a license for the Shoreham facility. It is expected that this information will be provided in LIPA's application for a license to possess the facility.

QUESTION 13. At this time, it is my understanding that the Long Island Power Authority does not have statutory authority to purchase Shoreham and that there is a bill pending in the New York state legislature to amend LIPA's charter to allow the purchase. How would this affect NRC's review of a request to transfer the Shoreham license?

ANSWER

Although the Commission may start review of a request to possess the facility before LIPA had statutory authority to purchase the facility, such authority would be required before the Commission could make the finding of financial qualification (and perhaps technical qualification depending on the nature of LIPA's statutory authority) required by 10 CFR 50.57 and 50.92. These findings must be made prior to issuance of the license amendment authorizing transfer of the facility to LIPA.

QUESTION 14. Under the terms of the Shoreham agreement, Long Island Power Authority would contract with the New York Power Authority for decommissioning of the reactor. As I understand it, LIPA itself would not have the technical expertise and resources to carry out this work. How would this affect NRC's review of a license transfer? Does the Commission generally believe it would be acceptable that a licensee not possess its own technical expertise so long as that expertise is obtained through contract? Are there any precedents for this; that is, are there any current NRC licensees similar to Long Island Power Authority who obtain all of their technical expertise by contract?

ANSWER

If LIPA proposed that NYPA conduct the decommissioning work, NRC's review of a facility transfer would entail a review of the management and technical support organization of NYPA to perform the contracted activities as well as the competence of LIPA management to carry out its responsibilities as licensee to manage the activities of its contractors so as to assure adequate protection of public health and safety. It would be acceptable for a licensee to obtain by contract technical resources that it did not possess on its own. In fact, many licensees do not possess all the technical resources required to operate and maintain a nuclear power plant. They contract for and hire consultants to obtain necessary resources. However, it is essential that the licensee responsible for the facility have adequate technical and management competence to manage its contractors and that the total technical resources made available by the licensee through its own resources and through contract resources satisfy the Commission's criteria (see answer to question 7).

There are no NRC licensees with an arrangement similar to the postulated LIPA - NYPA arrangement. However, there are and have been situations involving several co-licensees in which one co-licensee operates the plant. The licensee responsible for operating the facility is required to meet the technical qualifications requirements to operate the facility. Several of these cases are discussed in response to question 15.

QUESTION 15. Has the Commission ever before considered a request to transfer a license? What is the Commission's past experience in this area? Please describe any requests that are somewhat similar.

ANSWER

The Commission has previously acted on facility transfer requests in a number of cases, but none are quite the same as that proposed for Shoreham.

The Indian Point 3 facility was transferred from the Consolidated Edison Company (ConEd) to the Power Authority of the State of New York (PASNY; the name was later changed to the New York Power Authority (NYPA)). This was authorized in two steps. Initially, in December 1975, the operating license was amended to authorize PASNY to own (but not to operate) the facility. ConEd remained licensed to operate the facility under contract with PASNY, after sale of ConEd's ownership. During the next two years, PASNY personnel undertook training and familiarization. Subsequently, after finding that PASNY was fully qualified to operate the facility, the license was again amended in March 1978 to delete the authority to operate previously vested in ConEd and to authorize PASNY to operate the facility. NYPA continues to operate the facility.

In 1974, the Fitzpatick plant was licensed with Niagara Mohawk authorized to operate the facility under contract for PASNY. PASNY was authorized to own the facility. Subsequently, in 1977, after finding that PASNY was qualified to operate the facility, the license was amended to delete the authority of Niagara Mohawk to operate the facility and to authorize PASNY to operate it.

In 1982, Mississippi Power and Light Company (MP&L) was licensed to operate Grand Gulf Unit 1, which was owned by Middle South Energy (whose name was subsequently changed to Systems Energy Resources Inc. (SERI)) and South Mississippi Electric Power Association. In November 1986, the license was amended to delete the authority of MP&L to operate and to permit SERI to operate the facility. Both companies are wholly owned subsidiaries of the same holding company. Much of the plant staff and management transferred to the new licensee.

A request for SERI to become licensed to operate Arkansas Nuclear One Units 1 & 2 and Waterford 3 is currently under review by NRC.

In September 1981, the authority to operate Three Mile Island Unit 1 was transferred from Metropolitan Edison (MetEd) to GPU Nuclear Corporation. Both are subsidiaries of General Public Utilities Corporation. There had been an earlier change to permit GPU Nuclear Group (GPUNG) to operate Three Mile Island Unit 1. GPUNG was an organization which combined the technical and managerial resources of the GPU subsidiaries into a single entity. It was replaced by GPU Nuclear Corporation.

In 1974, Power Reactor Development Company (PRDC) changed the status of the Fermi 1 facility to non-operating and the license was amended to authorize "possession only." In 1976, ownership of the facility was transferred from PRDC to Detroit Edison. The license was amended to delete PRDC from the license and to authorize Detroit Edison to possess but not operate the facility. Detroit Edison was a principal participant in PRDC, and Detroit Edison employees were previously authorized to carry out all jobs at the Fermi 1 site. On April 28, 1989, the possession-only license was renewed, authorizing possession of the facility in SAFESTOR decommissioning status.

During 1978-81, ownership of Catawba Unit 2 was transferred by Duke Power Company to North Carolina Municipal Power Agency, No.1, and Piedmont Municipal Power Agency (Owners), and the construction permit was amended accordingly. Duke remained responsible for construction of the facility. The facility was licensed to operate at full power in May 1986 with Duke authorized to operate the facility and the Owners authorized to possess but not to operate.

There have been other cases involving partial ownership transfers and corporate structural changes that did not involve a major change in plant operating authority.

ENCLOSURE 1

(See Question 7)

NUREG-0800
(Formerly NUREG-75/087)

U.S. NUCLEAR REGULATORY COMMISSION
STANDARD REVIEW PLAN
OFFICE OF NUCLEAR REACTOR REGULATION

13.1.1 MANAGEMENT AND TECHNICAL SUPPORT ORGANIZATION

REVIEW RESPONSIBILITIES

Primary - Licensee Qualification Branch (LQB)

Secondary - None

I. AREAS OF REVIEW

The LQB will review the corporate level management and technical organizations of the applicant for a CP and OL and its major contractors, including the nuclear steam supply system (NSSS) vendor, and architect/engineer (A/E) for the project; including the technical resources to support the nuclear power plant design, construction, testing, and operation. The review for a construction permit will include an examination of the utility's responsibilities, technical staff and the interface arrangements and management controls used to assure that the design and construction of the facility will be performed in an acceptable manner. The review for an operating license will examine the applicant's corporate organization and technical staff which will be in place to provide support for safe plant operation.

The objective of this review is to assure that the corporate management is involved with, informed about, and dedicated to the safe design, construction, test and operation of the nuclear plant and that sufficient technical resources have or are being and will be provided to adequately accomplish these objectives.

Part A below describes in detail the areas of review for a CP and Part B below describes in detail the areas of review for an OL.

A. Construction Permit

The applicant's past experience in the design and construction of nuclear power plants, and past experience in activities of similar scope and complexity should be described. The applicant's (utility's) management, engineering, and technical support organization, including organizational charts reflecting the applicant's current headquarters and engineering structure and planned modifications and additions to it to reflect the added functional responsibilities

USNRC STANDARD REVIEW PLAN

Standard review plans are prepared for the guidance of the Office of Nuclear Reactor Regulation staff responsible for the review of applications to construct and operate nuclear power plants. These documents are made available to the public as part of the Commission's policy to inform the nuclear industry and the general public of regulatory procedures and policies. Standard review plans are not substitutes for regulatory guides or the Commission's regulations and compliance with them is not required. The standard review plan sections are keyed to the Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants. Not all sections of the Standard Format have a corresponding review plan.

Published standard review plans will be revised periodically, as appropriate, to accommodate comments and to reflect new information and experience.

Comments and suggestions for improvement will be considered and should be sent to the U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, Washington, D.C. 20555.

associated with the addition of the nuclear plant should also be described. These added responsibilities should be identified and should include items listed in 1 and 2 below.

1. Design and Construction Responsibilities

   A description of the implementation or delegation of the following areas of responsibility should be included.

   a. Principal site-related engineering work such as meteorology, geology, seismology, hydrology, demography, and environmental effects.

   b. Design of plant and ancillary systems, including fire protection systems.

   c. Review and approval of plant design features.

   d. Site layout with respect to environmental effects and security provisions.

   e. Development of safety analysis reports.

   f. Material and components specification review and approval.

   g. Procurement of materials and equipment.

   h. Management of construction activities.

2. Preoperational Responsibilities

   The proposed plans for the management organization in regard to the following items of the initial test program should be described:

   a. Development of plans for the preoperational and startup testing of the facility.

   b. Development and implementation of staff recruiting and training programs.

   c. Development of plant maintenance programs.

In regard to items 1 and 2 above, the description should include how these responsibilities are delegated and implemented within and from the headquarters staff and should identify the working or performance level and responsible organization unit, including an estimate of the number of persons expected to be assigned to each of the various units with responsibility for the project. In addition describe the role the utility management will have in interfacing with the nuclear steam system suppliers and the architect/engineer, including the required review of contractor work by the utility staff.

The PSAR should also identify general qualification requirements in terms of numbers, educational backgrounds, and experience for identified positions or classes of positions; and specific educational and experience background for assigned management and supervisory positions relative to items 1 and 2 above.

For identified positions or classes of positions that have functional responsibilities for other than that of the CP application, the expected proportion of time assigned to the other activities should be described. In addition, the early plans for providing technical support for the operation of the facility should be described.

The CP-stage review (PSAR) of the NSSS and A/E organizations includes a review of their technical staff to perform the activity related to the application. The information submitted should include a description of the specific activity (including scope) to be engaged in, organizational description and charts reflecting organizational lines of authority and responsibility for the project, the number of persons assigned to the project, and qualification requirements for principal management positions related to the project. For those NSSS and A/E organizations with extensive experience, a detailed description of this experience may be provided in lieu of the details of their organization as evidence of technical capability. However, a specific description of how this experience will be applied to the particular utility project should be provided.

B. Operating License

The FSAR should provide the following information: (1) organizational charts of the applicant showing the corporate level management and technical support structure, including the relationship of the nuclear oriented portions of the structure to the rest of the corporate organization, and a description of the specific provisions which have been made for technical support for operations, (2) the organizational unit and any augmenting organizations, or other personnel that will manage or execute any phase of the test program, including the responsibilities and authorities of principal participants.

Technical services and backup support for the operating organization should become available in advance of the conduct of the preoperational and startup testing program and continue throughout the life of the plant.

The FSAR should (1) identify in terms of numbers, educational background and experience requirements for each identified position or class of positions providing technical support for plant operations, and (2) include specific educational and experience background for individuals holding the management and supervisory positions providing support in the areas identified below.

The special capabilities that should be included in the support for the operation of the plant are:

1. Nuclear, mechanical, structural, electrical, thermal-hydraulic, metallurgical and materials, and instrumentation and controls engineering
2. Plant chemistry
3. Health physics

4. Fueling and refueling operations support
5. Maintenance support
6. Operations support
7. Quality assurance
8. Training
9. Safety review
10. Fire protection
11. Outside contractual assistance

In addition, LQB will coordinate other branches evaluations that interface with the overall review of the management and technical support organization as follows: the Emergency Preparedness Licensing Branch (EPLB) reviews the acceptability of the emergency organization as part of its primary review responsibility for SRP Section 13.3; the Quality Assurance Branch (QAB) reviews the acceptability of the detailed quality assurance organization as part of its primary review responsibility for SRP Section 17.0; the Radiological Assessment Branch (RAB) reviews the acceptability of the radiation protection organization as part of its primary review responsibility for SRP Section 12.5.

For those areas of review identified above as being reviewed as part of the primary review responsibility of other branches, the acceptance criteria necessary for the review and their methods of application are contained in the referenced SRP section of the corresponding primary branch.

II. ACCEPTANCE CRITERIA

The applicant's description of its resources to deal with safety-related problems connected with the proposed addition of nuclear generating capacity should provide contributory evidence as to the technical qualifications of the applicant, as required by 10 CFR Part 50, §50.40(b).

Specific criteria which contributed to meeting §50.40(b) with respect to the CP review and OL review are described below in A and B, respectively.

A. Construction Permit

1. The applicant has identified and functionally described the specific organizational groups responsible for implementing responsibilities for the project (CP).
2. The applicant has described the method of implementing its responsibilities for dealing with the safety-related aspects of the design and construction of the project and the transition to operation of the facility including control of major contractors.
3. Clear unambiguous management control and communications exist between the organizational units involved in the design and construction of the project.

4. Substantive breadth and level of experience and availability of manpower exist to implement the responsibility for the project.

5. The applicant has clearly described the role and function of the A/E and NSSS vendor during both design and construction and has demonstrated utility control over the decisions of the A/E and NSSS vendor.

6. The applicant has designated the responsible organizations that will participate in the test program and early plans indicate reasonable assurance that such designated organizations can collectively provide the necessary level of staffing with suitable skills and experience to develop and conduct the test program.

7. The applicant plans to utilize the plant operating and technical staff in the development and conduct of the test program and in the review of test results.

8. The applicant has identified plans for the organization and staffing to oversee design and construction of the nuclear facility in accordance with the guidelines of Item II.J.3.1 of NUREG-0718.

B. Operating License

The review and evaluation of management and technical organizational structure for Operating License Applicants is based on meeting the guidelines of TMI Action Plan Item I.B.1.2 of NUREG-0694 as augmented. Specific criteria are as follows:

1. The applicant has identified and described the organizational groups responsible for implementing responsibilities for the initial test program, and technical support for the operation of the facility.

2. The applicant has described the method of implementing its responsibilities for dealing with the initial test program, technical support, and operation of the facility.

3. The organizational structure provides for the integrated management of activities that support the operation and maintenance of the facility.

4. Clear management control and effective lines of authority and communications exist between the organizational units involved in the management, operation, and technical support for the operation of the facility (OL).

5. Substantive breadth and level of experience and availability of manpower exist to implement the responsibility for the initial test program and technical support for the operation of the facility. The need to supplement the corporate structure with additional experienced personnel for the initial years of operation will be determined on a case-by-case basis.

6. Qualifications of the "Engineer in Charge" should meet or exceed those given in Section 4.6.1 of ANSI N18.1, as endorsed by Regulatory Guide 1.8.

7. Responsibilities for fire protection should conform to BTP CMEB 9.5-1 attached to SRP Section 9.5.1.

8. The technical staff will be utilized in the initial test program to the maximum extent practicable. Participants in the test program should receive plant-specific training/indoctrination in the administrative controls for the test program prior to the start of testing. The level of staffing should be adequate based on the reviewer's judgment.

III. REVIEW PROCEDURES

Each element of the SAR information is to be reviewed against this SRP section. The reviewer's judgment during the review is to be based on an inspection of the material presented, whether items of special safety significance are involved, and the magnitude and uniqueness of the project. Any exceptions or alternatives are to be carefully reviewed to assure that they are clearly defined and that an adequate basis exists for acceptance. The applicant should identify the applicable version of references, Regulatory Guides, and Codes and Standards used. The reviewer should identify the applicable version of references, Regulatory Guides, and Codes and Standards used in the review.

In the review and evaluation of the subject matter of this section of the SAR, the following points should be taken into consideration.

The corporate level management and technical support structure, as demonstrated by organizational charts and descriptions of functions and responsibilities, should be free of ambiguous assignments of primary responsibility. A corporate officer should clearly be responsible for nuclear activities, without having ancillary responsibilities that might detract from his attention to nuclear safety matters. Design and construction responsibilities should be reasonably well defined in both numbers and experience of persons required to implement their responsibilities. The reviewer must recognize that there are many acceptable ways to define and delegate job responsibilities. At the CP stage, with respect to technical support for operations, the applicant's plans for headquarters staffing may not yet be firm. It is acceptable, therefore, if these plans are not fully specific in terms of numbers of people, provided the commitment made is sufficiently firm to assure the responsibility can be met. Variations in staffing may also be expected between applicants who lack prior experience with nuclear plant operation and those who have such experience. It is important that the reviewer assure himself that applicants in the former category do not underestimate the magnitude of the task. The reviewer should be alert to the possibility that excessive workloads may be placed upon too small a number of individuals. Interface arrangements and controls between the applicant and major contractors (NSSS vendors, architect/engineers, constructors) should be examined to assure that the applicant will be in charge of and responsible for design and construction activities.

If the application involves the addition of more than one unit, the reviewer should assure that headquarters staffing plans take this fact into account. This is particularly important if additional units are scheduled to come on line at intervals of about one year or less, since the shakedown period for the operation of a new plant can be expected to produce quite heavy workloads. In some of these cases the applicant may plan to bolster the plant staff organization during such periods so that it is necessary to evaluate headquarters staffing plans in conjunction with those for the plant staff organization.

The reviewer should assess the degree of participation during the design and construction phases by that headquarters group that typically has plant operating (generating) responsibility. Interfaces between such a group and those with project engineering responsibilities should be examined.

The review procedure for this section consists, therefore, of:

1. An examination of the information submitted to determine that all subject matter identified in subsection I above has been addressed.

2. A comparison of the information with the acceptance criteria of subsection II above in the light of the additional points set forth earlier in this SRP section.

3. Review of information provided by the Office of Inspection and Enforcement position statement on the applicant's organizational and administrative commitments made in the SAR.

4. Corporate headquarters and site visits by one or more members of the LQB to review, discuss, and verify implementation of the management structure and technical resources. With respect to site visits, in addition to LQB members, review teams may include personnel from the Office of Inspection and Enforcement and the Division of Licensing.

In addition, if the applicant, as of the time the review takes place, has had experience in the operation of a previously licensed nuclear power plant, the reviewer may seek independent information relative to headquarters staffing and qualifications through the Office of Inspection and Enforcement, e.g., by discussion with inspection personnel or review of inspection reports.

The reviewer then determines, based on the foregoing, the overall acceptability of the applicant's management and technical support organization and staffing plans.

IV. EVALUATION FINDING

The reviewer verifies that the information presented and the review of that information support conclusions of the following type to be used in the staff's safety evaluation report:

A. CP Safety Evaluation Report

The applicant has described clear responsibilities and associated resources for the design and construction of the facility and has described its plans for management of the project and for utilization of the NSSS and A/E. These plans have been reviewed and give adequate assurance that an acceptable organization and staff resources have been established to satisfy the applicant's commitments for the design and construction of the facility. These findings contribute to the requirements of 10 CFR Part 50, §50.40(b); i.e., that the applicant is technically qualified to engage in design and construction activities.

B. OL Safety Evaluation Report

The applicant has described its organization for the management of, and its means for providing technical support for the plant staff during operation of the facility. These measures have been reviewed and we conclude that the applicant has an acceptable organization and adequate resources to provide offsite technical support for the operation of the facility under both normal and off-normal conditions.

These findings contribute to the staff's collective judgment that the applicant complies with the requirements of §50.40(b) (that the applicant is technically qualified to operate a nuclear power plant), that the applicant will have the necessary managerial and technical resources to provide assistance to the plant staff in the event of an emergency; that the applicant has identified the organizational positions responsible for fire protection matters and the authorities that have been delegated to these positions to implement fire protection responsibilities, in accordance with the guideline of BTP CMEB 9.5-1.

V. IMPLEMENTATION

The following is intended to provide guidance to applicants and licensees regarding the NRC staff's plans for using this SRP section.

Except in those cases in which the applicant proposes an acceptable alternative method for complying with specified portions of the Commission's regulations, the method described herein will be used by the staff in its evaluation of conformance with Commission regulations.

Implementation schedules for conformance to parts of the method discussed herein are contained in the referenced regulatory guides and NUREGs.

VI. REFERENCES

1. 10 CFR Part 50, §50.40(b), "Common Standards."
2. Regulatory Guide 1.8, "Personnel Selection and Training."
3. Regulatory Guide 1.68, "Initial Test Programs for Water-Cooled Nuclear Power Plants."
4. Standard Review Plan Section 9.5.1, "Fire Protection Program."
5. NUREG-0694, "TMI-Related Requirements for New Operating Licenses."
6. NUREG-0718, "Licensing Requirements for Pending Applications for Construction Permits and Manufacturing License."
7. NUREG-0737, "Clarification of TMI Action Plan Requirements."

NUREG-0800
(Formerly NUREG-75/087)

U.S. NUCLEAR REGULATORY COMMISSION
STANDARD REVIEW PLAN
OFFICE OF NUCLEAR REACTOR REGULATION

13.1.2-13.1.3 OPERATING ORGANIZATION

REVIEW RESPONSIBILITIES

Primary - Licensee Qualification Branch (LQB)

Secondary - None

I. AREAS OF REVIEW

The applicant's operating organization, as described in its Safety Analysis Report (SAR), is reviewed. This section of the SAR (PSAR and FSAR) should describe the structure, functions, and responsibilities of the onsite organization established to operate and maintain the plant. Specific information to be reviewed is as follows:

A. An organization chart showing the title of each position, the minimum number of persons to be assigned to common or duplicated positions, the number of operating shift crews, and the positions for which reactor operator and senior reactor operator licenses are required. For multi-unit stations, the organization chart (or additional charts) should clearly reflect changes and additions as new units are added to the station.

B. The schedule, relative to fuel loading for each unit, for filling all positions should be presented.

C. The functions, responsibilities, and authorities of plant positions corresponding to the following should be described:

1. Overall plant management
2. Operations supervision
3. Operating shift crew supervision
4. Shift technical advisors
5. Licensed operators
6. Non-licensed operators
7. Technical supervision
8. Radiation protection supervision
9. Instrumentation and controls maintenance supervision

USNRC STANDARD REVIEW PLAN

Standard review plans are prepared fo. the guidance of the Office of Nuclear Reactor Regulation staff responsible for the review of applications to construct and operate nuclear power plants. These documents are made available to the public as part of the Commission's policy to inform the nuclear industry and the general public of regulatory procedures and policies. Standard review plans are not substitutes for regulatory guides or the Commission's regulations and compliance with them is not required. The standard review plan sections are keyed to the Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants. Not all sections of the Standard Format have a corresponding review plan.

Published standard review plans will be revised periodically, as appropriate, to accommodate comments and to reflect new information and experience.

Comments and suggestions for improvement will be considered and should be sent to the U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, Washington, D.C. 20555.

10. Equipment maintenance supervision
11. Fire protection supervision
12. Quality assurance supervisor (when part of the plant staff)

For each position, where applicable, required interfaces with offsite personnel or positions identified in SAR Section 13.1.1 should be described. Such interfaces include defined lines of reporting responsibilities, e.g., from the plant manager to his immediate superior, as well as functional or communication channels. In the Final Safety Analysis Report (FSAR), the following should also be described: (1) the line of succession of authority and responsibility for overall station operation in the event of unexpected contingencies of a temporary nature, and (2) the delegation of authority that may be granted to operating supervisors and to shift supervisors, including the authority to issue standing or special orders.

The FSAR should describe the extent and nature of the participation of the plant operating and technical staff in the initial test program.

If the station contains or is planned to contain power generating facilities other than those relating to the application in question and including fossil-fueled units, this section should also describe interfaces with the organizations operating such other facilities. The description should include any proposed sharing of persons between the units, a description of their duties, and the proportion of their time they will routinely be assigned to the other unit.

D. The position titles, applicable operator licensing requirements for each, and the total number of people planned to man each shift should be described for all combinations of units proposed to be at the station in either operating or cold shutdown modes. Shift crew staffing plans unique to refueling operations should be described. The proposed means of assigning shift responsibility for implementing the radiation protection and fire protection programs on a round-the-clock basis should also be described.

E. The education, training, and experience requirements (qualification requirements) established by the applicant for filling each management, operating, technical, and maintenance position category in the operating organization above should be described. This includes those persons who will conduct preoperational and startup tests. At the PSAR stage, it is recognized that many details of the plant organization (see A, above) and staffing have not been finalized. Consequently, the information to be reviewed should demonstrate an understanding of and commitment to the acceptance criteria below. At the FSAR stage, this section should in addition provide evidence, in the form of personnel resumes, that the initial selections made for management and principal supervisory positions down through the shift supervisory level conform to those requirements.

In addition to examining the above areas of review, LQB will coordinate other branch evaluations that interface with the overall review of the applicants operating organization as follows:

The Radiological Assessment Branch (RAB) reviews the detailed radiological protection organization as part of its primary review responsibility for SRP Section 12.5. The Emergency Preparedness Licensing

Branch (EPLB) reviews the emergency organization as part of its primary review responsibility for SRP Section 13.3. The Quality Assurance Branch (QAB) reviews the detailed quality assurance organization as part of its primary review responsibility for SRP Section 17.0.

For those areas of review identified above as being reviewed as part of the primary review responsibility of other branches, the acceptance criteria necessary for the review and their methods of application are contained in the referenced SRP section of the corresponding primary branch.

II. ACCEPTANCE CRITERIA

This section of the SAR should demonstrate the applicant's commitment to (PSAR) and implementation of (FSAR) plans to staff the onsite operating organization and to define and delegate responsibilities to provide assurance that the plant can be operated safely.

The staff acceptance criteria are designed to produce reasonable assurance of applicant compliance with the relevant requirements of the following regulations:

1. 10 CFR Part 50, §50.40b as it relates to demonstrating in conjunction with other reviews that the applicant is technically qualified to engage in nuclear activities licensed under these regulations.
2. 10 CFR Part 50, §50.54 j, k, l, and m as it relates to operator requirements during the operation of the facility, the responsibility for directing activities of licensed operators, and the senior operator availability during reactor operations and other specific reactor conditions or mode of operation.

Specific criteria necessary to meet the relevant requirements of the regulations are as follows:

A. The requirements of ANSI N18.7, Section 3.4, "Operating Organization," as endorsed by Regulatory Guide 1.33, should be met. Additionally, the following characteristics should be satisfied:

   1. The reporting responsibility and authority of the functional areas of radiation protection, quality assurance, and training should assure independence from operating pressures. In utilities with large commitments to nuclear power plants, overall management and technical direction in these areas may be concentrated at the home office.
   2. There are clear lines of authority to the Plant Manager.
   3. Responsibility for all activities important to the safe operation of the facility are clearly defined.
   4. Distinct functional areas are separately supervised and/or managed.
   5. Sufficient managerial depth is available to provide qualified backup in the event of the absence of the incumbent.

B. Responsibilities and authorities of operating organization personnel should conform to the requirements of ANSI N18.7, Section 5.2, "Rules of Practice"; Section 4.4, "Onsite Review," as endorsed by Regulatory Guide 1.33; Branch Technical Position CMEB 9.5-1; ANSI N18.1; Section 3.2, "Operating Organization," as endorsed by Regulatory Guide 1.8. In addition, to meet TMI Action Plan item I.C.3 of NUREG-0694, the responsibilities of the shift supervisor shall clearly establish the command duties of the shift supervisor and emphasize the primary management responsibility for the safe operation of the plant.

C. Assignments of onsite shift operating crews should be made in accordance with the staff positions of TMI Action Plan item I.A.1.3 of NUREG-0737 and the following:

At any time a licensed nuclear unit is being operated in Modes 1-4 for a PWR (Power Operation, Startup, Hot Standby, or Hot Shutdown, respectively) or in Modes 1-3 for a BWR (Power Operation, Startup, or Hot Shutdown, respectively), the minimum shift crew shall include two licensed senior reactor operators (SRO), one of whom shall be designated as the shift supervisor, two licensed reactor operators (RO) and two unlicensed auxiliary operators (AO). For a multi-unit station, depending upon the station configuration, shift staffing may be adjusted to allow credit for licensed senior reactor operators (SRO), auxiliary operators (AO) and licensed reactor operators (RO) to serve as relief operators on more than one unit; however, these individuals must be properly licensed on each such unit. At all other times, for a unit loaded with fuel, the minimum shift crew shall include one shift supervisor who shall be a licensed senior reactor operator (SRO), one licensed reactor operator (RO) and one unlicensed operator.

Adjunct requirements to the shift staffing criteria stated above are as follows:

1. A shift supervisor with a senior reactor operator's license, who is also a member of the station supervisory staff, shall be onsite at all times when at least one unit is loaded with fuel.

2. A licensed senior reactor operator (SRO) shall, at all times, be in the control room from which a reactor is being operated. The shift supervisor may act as temporary relief for the licensed senior reactor operator assigned to the control room.

3. For any station with more than one reactor containing fuel, the number of licensed senior reactor operators onsite shall, at all times, be at least one more than the number of control rooms from which the reactors are being operated.

4. In addition to the licensed senior reactor operators specified in items C.1., C.2., and C.3. above, for each reactor containing fuel, a licensed reactor operator (RO) shall be in the control room at all times.

5. In addition to the operators specified in items C.1., C.2., C.3., and C.4. above, for each control room from which a reactor is being operated, an additional licensed reactor operator (RO) shall be onsite at all times and available to serve in addition to other duties as relief operator for that control room. As noted above, this individual may serve as relief operator for each unit being operated from that control room, provided he holds a current license for each unit.

6. In addition to the licensed personnel specified in items C.1. through C.5. above, an auxiliary operator (non-licensed) shall be assigned to each reactor and an additional auxiliary operator shall be assigned for each control room from which a reactor is operating. These operators shall be properly qualified to support the unit to which assigned. Note: The above requirements (C.1 through C.6) are shown in tabular form in Table 1.

7. In addition to the staffing requirements stated above, shift crew assignments during periods of core alterations shall include a licensed senior reactor operator (SRO) to directly supervise the core alterations. This licensed senior reactor operator may have fuel handling duties but shall not have other concurrent operational duties.

8. To meet TMI Action Plan item I.A.1.1 of NUREG-0737, a shift technical advisor (STA) shall be onsite at all times a licensed nuclear unit is being operated in Modes 1-4 for a PWR or in Modes 1-3 for a BWR.

9. A health physics technician shall be onsite at all times when there is fuel in a reactor.

10. A rad/chem technician shall be onsite at all times when a licensed nuclear unit is being operated in Modes 1-4 for a PWR or in Modes 1-3 for a BWR.

D. Total complements of licensed personnel, items C.2 through C.6 above, should be provided such that the use of overtime is avoided (note Section 13.5.1 on work hour limitations). To meet this policy, staffing plans should provide for no less than the number required for five shift rotations.

E. The plant operating and technical staff should be used to the maximum extent possible in the facility initial test program.

F. Assignments of persons to implement the fire brigade requirements of the fire protection program should meet the guideline of SRP Section 9.5.1 including the following:

1. The responsibilities of the fire brigade members under normal conditions should not conflict with their responsibilities during a fire emergency.

2. The minimum number of fire brigade members available onsite for each shift operation crew should be consistent with the activities

TABLE 1

SHIFT STAFFING**

	One Unit One Control Room	Two Units One Control Room	Two Units Two Control Rooms
One Unit Operating*	1 SS (SRO) 1 SRO 2 RO 2 AO	1 SS (SRO) 1 SRO 3 RO 3 AO	1 SS (SRO) 1 SRO 3 RO 3 AO
Two Units Operating*	NA	1 SS (SRO) 1 SRO 3 RO 3 AO	1 SS (SRO) 2 SRO 4 RO 4 AO
All Units Shutdown	1 SS (SRO) 1 RO 1 AO	1 SS (SRO) 2 RO 3 AO	1 SS (SRO) 2 RO 3 AO

SS - Shift Supervisor
SRO - Licensed Senior Reactor Operator
RO - Licensed Reactor Operator
AO - Auxiliary Operator

NOTE: 1. In order to operate or supervise the operation of more than one unit, an operator (SRO or RO) must hold an appropriate, current license for each such unit.

2. In addition to the staffing requirements indicated in the table, a licensed senior operator will be required to directly supervise any core alteration activity.

*Modes 1 through 4 for PWRs.
Modes 1 through 3 for BWRs.

**Shift staffing for special cases such as 3 units operating from 1 or 2 control rooms will be determined on a case-by-case basis, based on the principles defined in items II.C.1 through II.C.6 of this SRP section.

required to combat the most significant fire. The minimum size of the fire brigade shift should be five persons unless a specific site evaluation has been completed and some other number justified.

G. Regulatory Guide 1.8, "Personnel Selection and Training," sets forth the staff position on plant personnel qualifications and indicates that the criteria for selection (qualifications) contained in ANSI N18.1 are generally acceptable, except as noted in the regulatory position section of Regulatory Guide 1.8. Plant staff personnel listed in items A. through D. above should meet this staff position.

A shift technical advisor (STA) has been added to the onsite shift operating crew by item C.8 described above. This STA shall have a bachelor's degree or equivalent in a scientific or engineering discipline and shall have received specific training as described in SRP Section 13.2.

In addition, although the qualification levels of the standard are endorsed as acceptable minimums for each position, it is expected that the collective qualifications of the plant staff will be greater than the sum of the minimum individual requirements described in the standard, particularly in the area of nuclear power plant experience and in supervisory and management positions involved in the operational aspects of the facility. In those cases where the collective qualifications do not exceed the sum of the minimums for individual positions, additional technical support for the plant staff may be required. These will be determined on a case-by-case basis.

III. REVIEW PROCEDURES

Each element of the SAR information is to be reviewed against this SRP section. The reviewer's judgment during the review is to be based on an inspection of the material presented, whether items of special safety significance are involved, and the uniqueness of the facility. Any exceptions or alternatives are to be carefully reviewed to assure that they are clearly defined and that an adequate basis exists for acceptance.

The applicant should identify the applicable version of references, Regulatory Guides, and Codes and Standards used. The reviewer should identify the applicable version of references, Regulatory Guides, and Codes and Standards used in the review.

In the review and evaluation of the subject matter of this section of the SAR, the following points should be taken into consideration.

Plant staff organizational structures are not rigidly fixed; however, experience has shown that certain components are common to and necessary for all plants. Among these are operational, onsite technical support, and maintenance groups, under the direction and supervision of a plant manager. For multi-unit sites, consideration must be given to the possibility that off-shift supervision may be stretched too thin to provide effective supervision. For example, a single operations manager may have difficulty covering more than two units. For on-shift persons, the total manpower available should be reviewed to assure that in excess of five full operating shift crews are planned so that excessive overtime is not routinely scheduled for these crews. For multi-unit sites, overall site responsibilities should be checked for clarity during those periods of time when senior level supervision is not onsite.

The operating organization, as demonstrated by organization charts and descriptions of functions and responsibilities, should be free of ambiguous assignments of primary responsibility. Operating responsibilities should be reasonably well defined in both numbers and experience of persons required to implement their responsibilities. The reviewer must recognize that there are many acceptable ways to define and delegate job responsibilities. Variations in staffing may also be expected between applicants who lack prior experience with nuclear plant operation and those who have such experience. It is important that the reviewer assure himself that applicants in the former category do not underestimate the magnitude of the task. The reviewer should be alert to the possibility that excessive workloads may be placed upon too small a number of individuals.

The structure of onsite technical support and maintenance groups may depend somewhat on headquarters staffing and the division of effort between onsite and offsite personnel.

At the construction permit (CP) stage, the applicant will generally not have made selections for plant staff positions. The review procedure, therefore, is to examine this section of the SAR for a commitment on the part of the applicant to conform to the stated acceptance criteria.

Where a clear comparison cannot be made between the proposed plant staff positions and those defined in Section 4 of ANSI N18.1, the applicant should list each position on its plant staff and designate the corresponding position of Section 4 of ANSI N18.1, or describe in detail the proposed qualification requirements for each position on its plant staff.

The review of the FSAR, at the operating license (OL) stage, consists first of the same examination as made at the CP stage, and secondly, of an analysis of each resume. The reviewer should make an explicit comparison of the educational and experience records obtained from each resume with the corresponding requirements set forth for the applicable position in Section 4 of ANSI N18.1 or other approved qualifications. "Applicable experience" should be judged in the light of the position responsibility. Credit for experience, which may not be entirely applicable, should be weighed to a degree commensurate with its applicability.

In addition, if the applicant, as of the time the review takes place, has had experience in the operation of previously licensed nuclear power plants, the reviewer may seek independent information relative to plant staffing and qualifications through the Office of Inspection and Enforcement, e.g., by discussion with inspection personnel or review of inspection reports.

The reviewer then determines, based upon the foregoing, the overall acceptability of the applicant's operating organizations and plant staffing plans.

IV. EVALUATION FINDINGS

The reviewer verifies that the information presented and its review support conclusions of the following type to be used in the staff's Safety Evaluation Report:

The staff concludes that the applicants operating organization is acceptable and meets the relevant requirements of 10 CFR Part 50, §50.40b and §50.54 j through m. This conclusion is based on the following:

The applicant has described the assignment of plant operating responsibilities; the reporting chain up through the chief executive office of the company (applicant); the proposed size of the regular plant staff; the functions and responsibilities of each major plant staff group; and the proposed shift crew complement for single unit or multiple unit operation; the qualification requirements for members of its plant staff; and (FSAR-submitted personnel resumes for management and principal supervisory and technical positions). This information has been reviewed, and it is the conclusion of the staff that the proposed organization is acceptable.

Acceptability of the applicants operating organization is a significant input to the requirement that the applicant is technically qualified as required by 10 CFR Part 50, §50.40(b); that adequate licensed operators are available to meet the requirements of Section 50.54(j) through (m); the adequacy of the on-shift personnel to provide initial facility response in the event of an emergency; organizational requirements for the plant manager and radiation protection manager; qualification requirements and qualifications (FSAR) of plant personnel as stated in Regulatory Guide 1.8, and organizational requirements as stated in Regulatory Guide 1.33.

In addition, the applicant has complied with the requirements of TMI Action Plan items I.A.1.1 and I.A.1.3.

V. IMPLEMENTATION

The following is intended to provide guidance to applicants and licensees regarding the NRC staff's plans for using this SRP section.

Except in those cases in which the applicant proposes an acceptable alternative method for complying with specified portions of the Commission's regulations, the method described herein will be used by the staff in its evaluation of conformance with Commission regulations.

Implementation schedules for conformance to parts of the method discussed herein are contained in the referenced regulatory guides and NUREGs.

VI. REFERENCES

1. 10 CFR Part 50, §50.40, "Common Standards."
2. 10 CFR Part 50, §50.54, "Conditions of Licenses."
3. Regulatory Guide 1.8, "Personnel Selection and Training."
4. Regulatory Guide 1.33, "Quality Assurance Program Requirements (Operation)."
5. Branch Technical Position CMEB 9.5-1, "Fire Protection Program," attached to Standard Review Plan Section 9.5.1.
6. NUREG-0694, "TMI-Related Requirements for Operating Licenses."
7. NUREG-0737, "Clarification of TMI Action Plan Requirements."

NUREG-0800
(Formerly NUREG-75/087)

U.S. NUCLEAR REGULATORY COMMISSION
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13.4 OPERATIONAL REVIEW

REVIEW RESPONSIBILITIES

Primary - Licensee Qualification Branch (LQB)

Secondary - None

I. AREAS OF REVIEW

LQB reviews and evaluates the applicant's plan for conducting reviews of operating phase activities that are important to safety, as described in the applicant's Final Safety Analysis Report (FSAR). The primary focus of attention should be on the provisions that will be used to implement the licensee's responsibility relating to proposed changes, tests, and experiments, and on the procedures for after-the-fact review, evaluation of unplanned events, such as Licensee Event Reports, and on the provisions for the evaluation of plant operations. No information is required in the PSAR.

The FSAR should describe provisions for the plant operations review of operational activities, for the independent review of plant operations and for the independent assessment of activities for safety enhancement. Specific information to be reviewed is as follows:

1. How the onsite organization functions with respect to review of proposed changes to systems or procedures, tests, and experiments, and of unplanned events that have operational safety significance. This will include subject matter to be reviewed, organizational provisions for conducting the reviews including personnel, and the documentation and reporting of review activities.
2. The procedure and organization employed to examine safety-related operating activities independent of the operating organization. This will include how and when such a program is to be implemented, relative to fuel loading of the first unit, and include subject matter to be reviewed, organizational provisions for conducting the review including personnel, and the documentation and reporting of review activities.

Rev. 2 - July 1981

USNRC STANDARD REVIEW PLAN

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Published standard review plans will be revised periodically, as appropriate, to accommodate comments and to reflect new information and experience.

Comments and suggestions for improvement will be considered and should be sent to the U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, Washington, D.C. 20555.

3. The provisions employed to perform independent reviews and assessments of plant activities. This will include the functions of the review group, organizational provisions for conducting the activities, including personnel, and the documentation and reporting of these activities.

II. ACCEPTANCE CRITERIA

LQB acceptance criteria is based on meeting the relevant requirements of 10 CFR Part 50, §50.40(b) as it relates to the licensee being technically qualified to engage in licensed activities. Specific criteria necessary to meet the relevant requirements of §50.40(b) as they relate to items 1, 2, and 3 of subsection I listed above are as follows:

1. Plant Staff Review

   a. Scope of this review should include that of Section 4.4 of ANSI N18.7 (ANS 3.2), as endorsed by Regulatory Guide 1.33.

   b. Organizational arrangements should provide for interdisciplinary reviews of subject matter.

   c. Qualification levels for plant staff personnel performing review should be at least equivalent to those described in Section 4.4 of ANSI N18.1 as endorsed by Regulatory Guide 1.8.

   d. Review activities should be documented and results forwarded to appropriate members of management.

2. Independent Review

Provisions for independent review should meet that described in Section 4.3 of ANSI N18.7 (ANS 3.2), and the qualification requirements for those performing these reviews should meet or exceed those described in Section 4.7 of ANSI/ANS-3.1-1978 and the regulatory position of Regulatory Guide 1.8.

3. Independent Safety Engineering Group (ISEG)

The ISEG performs independent reviews of plant operations in accordance with the guidelines of item I.B.1.2 of NUREG-0660 and NUREG-0737.

a. The functions of this group are independent of those performed to meet 1 and 2 above.

b. The group shall be comprised of a minimum of five dedicated, full-time engineers, located onsite, but reporting offsite to a corporate official who holds a high-level, technically oriented position who is not in the management chain for power production. For utilities with multiple sites, it may be possible to perform portions of the independent safety assessment function in a centralized location for all the utility's plants. In such cases, an onsite group still is required, but it may be slightly smaller than would be the case if it were performing the entire independent safety assessment function. Such cases will be reviewed on a case-by-case basis.

c. The group should function to examine plant operating characteristics, NRC issuances, Licensing Information Service advisories, and other appropriate sources of plant design and operating experience information for areas for improving plant safety; and to maintain surveillance of plant operations and maintenance activities to provide independent verification that these activities are performed correctly and that human errors are reduced as far as practicable.

d. The group is to perform independent reviews and audits of plant activities including maintenance, modifications, operational problems, and operational analysis, and aid in the establishment of programmatic requirements for plant activities.

e. Qualification levels of persons performing this function shall meet or exceed that described in Section 4.4 of ANS 3.1, i.e., a bachelor's degree in engineering, and two to four years experience in their field, including one to two years nuclear experience.

f. The group shall provide to management no less frequently than monthly a summary of their activities to advise utility management on the overall quality and safety of operations.

III. REVIEW PROCEDURES

Each element of the FSAR information is to be reviewed against this SRP section. The reviewer's judgment during the review is to be based on an inspection of the material presented, whether items of special safety significance are involved, and the magnitude and uniqueness of the project. Any exceptions or alternatives are to be carefully reviewed to assure they are clearly defined and that an adequate basis exists for acceptance. The applicant should identify the revision of references, regulatory guides and codes and standards used. The reviewer should identify the revision of references, regulatory guides and codes and standards used in the review.

The review of this section of the FSAR consists of an analysis of the information submitted by detailed comparison with the acceptance criteria of subsection II, above. When the reviewer has determined that the acceptance criteria stated above or their equivalent have been satisfactorily addressed in the applicant's plans for conducting reviews, the review of this section of the SAR is complete.

IV. EVALUATION FINDINGS

The reviewer verifies that the information presented and his review support conclusions of the following type, to be used in the staff's safety evaluation report:

> The staff concludes the program for the review of plant operations is acceptable and contributes to meeting the requirements of 10 CFR Part 50, §50.40(b). This conclusion is based on the following:
>
> The applicant's program for the review of plant operations is in conformance with staff guidance described in Regulatory Guide 1.33 and applicable industry standards (ANSI N18.7), and is acceptable. The applicant has described the program for the review of operational activities. The program includes reviews by the plant staff organization, reviews of safety-related activities independent of the operating organization, and independent reviews and assessments of plant activities

by an independent group located onsite. We have reviewed the provisions for these reviews in respect to organizational provisions, qualification requirements of those performing the review, and the subject matter to be reviewed. We find that the applicant's program for the review of operational activities is in conformance with staff guidance described in Regulatory Guide 1.33 and the applicable industry standard (ANSI N18.7); the qualifications levels for plant staff personnel performing reviews meets the guidelines of Regulatory Guide 1.8 and applicable industry standard ANSI N18.1, Section 4.4; the provisions for an independent review meets the guidelines of Regulatory Guide 1.33 and applicable industry standard ANSI N18.7 (ANSI 3.2), Section 4.3 and ANSI/ANS 3.1, Section 4.7; and the applicant's Independent Safety Engineering Group meets the guidelines of Section I.B.1.2 of NUREG-0737.

V. IMPLEMENTATION

The following is intended to provide guidance to applicants and licensees regarding the NRC staff's plans for using this SRP section.

Except in those cases in which the applicant proposes an acceptable alternative method for complying with specified portions of the Commission's regulations, the acceptance criteria described herein will be used by the staff in its evaluation of conformance with Commission regulations.

Implementation schedules for conformance to parts of the method discussed herein are contained in the referenced regulatory guides and NUREG.

VI. REFERENCES

1. 10 CFR Part 50, §50.40(b), "Common Standards."

2. Regulatory Guide 1.33, "Quality Assurance Program Requirements."

3. Regulatory Guide 1.8, "Personnel Selection and Training."

4. NUREG-0737, "Clarifications of TMI Action Plan Requirements."

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13.5 PLANT PROCEDURES

REVIEW RESPONSIBILITIES

Primary - Operator Licensing Branch (OLB)

Secondary - None

(SRP Section 13.5 has been superceded by SRP Sections 13.5.1 and 13.5.2).

Rev. 2 - July 1981

USNRC STANDARD REVIEW PLAN

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Published standard review plans will be revised periodically, as appropriate, to accommodate comments and to reflect new information and experience.

Comments and suggestions for improvement will be considered and should be sent to the U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, Washington, D.C. 20555.

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13.5.1 ADMINISTRATION PROCEDURES

Primary - Licensee Qualifications Branch (LQB)

Secondary - None

I. AREAS OF REVIEW

LQB reviews the plant administrative procedures, as described in the applicant's safety analysis report (SAR). This section of the SAR should describe administrative procedures that provide administrative control over activities that are important to safety for the initial test program and operation of the facility. In general, it is not expected that detailed written procedures will be included in the SAR. The final safety analysis report (SAR) should provide descriptions as to the nature and content of procedures as detailed below. No information is required in the preliminary safety analysis report. The Procedures and Text Review Branch (PTRB) reviews testing and operational procedures as described in SRP Section 13.5.2.

A. Administrative Procedures - General

This section reviews administrative procedures (13.5.1). These procedures include (a) those which provide the administrative controls in respect to procedures and (b) those which define and provide controls for operational activities of the plant staff. Parts (a) and (b) below describe the type of procedures that are included in the review.

Category (a) - Controls

1. Procedures review and approval
2. Equipment control procedures
3. Control of maintenance and modifications
4. Fire protection procedures
5. Crane operation procedures

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Published standard review plans will be revised periodically, as appropriate, to accommodate comments and to reflect new information and experience.

Comments and suggest

6. Temporary changes to procedures

7. Temporary procedures

8. Special orders of a transient or self-cancelling character

Category (b) - Specific Procedures

1. Standing orders to shift personnel including the authority and responsibility of the shift supervisor, senior operator in the control room, control room operator, and the shift technical advisor

2. Assignment of shift personnel to duty stations

3. Shift relief and turnover

4. Control room access

5. Limitations on working hours

6. Feedback of operating experience

7. Shift supervisor administrative duties

8. Verification of correct performance of operating activities

LQB coordinates as necessary with the PTRB to assure any special criteria for procedural controls governing testing and operational procedures are met.

B. Administrative Procedures - Initial Test Program

LQB also reviews the administrative procedures that establish controls associated with the initial plant test program. This includes the system used to develop test procedures, the administrative controls that will govern the conduct of the test program, and the controls that will govern the review, evaluation, and approval of test results.

The following items are included.

1. Test Program Procedures

   The system the applicant will use to develop, review, and approve individual test procedures is reviewed. The responsibilities of the organizational units that will perform these activities, the designated functions of each organizational unit, and the general steps to be followed in governing these activities are reviewed. The type and source of design performance information that will be, or is being, used in the development of detailed test procedures is reviewed.

2. Conduct of Test Program

   The administrative controls that will govern the conduct of each major phase of the test program are reviewed. The following specific items are reviewed:

a. The means used to assure that prerequisites are satisfied for individual tests.

b. The procedures to be followed to assure that plant modifications, or repairs that result from test program analysis are performed.

c. The procedure used to ensure that necessary retesting is performed following repairs or modifications.

d. The controls that will be in effect to require adherence to approved test procedures.

3. Review, Evaluation, and Approval of Test Results

The procedures that will govern the review, evaluation, and approval of test results for each phase of the test program are reviewed, including the specific controls to be used to assure notification of responsible organizations, such as design organizations, when test acceptance criteria are not met and the specific controls established to resolve such problems. The applicant's controls relating to the methods and schedules for approval of test data for each major phase are reviewed as well as the methods used for initial review of parts of multiple tests (e.g., hot functional testing) prior to proceeding with the test phase.

II. ACCEPTANCE CRITERIA

LQB acceptance criteria is based on meeting the relevant requirements of 10 CFR Part 50, §50.40(b) as it relates to the administrative procedures program contributing to the determination that the licensee is technically qualified to engage in licensing activities and §50.54(1) as it relates to the licensee designating individuals to be responsible for directing the licensed activities of licensed operators.

A. Administrative Procedures - General

The available staff positions applicable to this SRP section are as follows. (Note - where regulatory guides are referenced, the current issue of the guide at the time of the review shall be used.)

1. The guidance described in Section 5.2 of ANSI/ANS 3.2, as endorsed by Regulatory Guide 1.33.
2. The requirement of 10 CFR Part 50, §50.54(1).
3. The plant procedures for shift relief and turnover should conform to the guidance of Task Action Plan Item I.C.2 of NUREG-0694.
4. The guidance described in Items I.A.1.2 and I.C.3 of NUREG-0694 concerning the Shift Supervisor's responsibility.
5. Limits on working hours should conform to the guidance described in Task Action Plan Item I.A.1.3 of NUREG-0737.
6. Control room access should conform to the guidance described in Item I.C.4 of NUREG-0694.

7. The procedure for the feedback of operating information should conform to the guidance described in Task Action Plan Item I.C.5 of NUREG-0737.

8. The procedure for verifying the correct performance of operating activities should conform to the guidance described in Task Action Plan Item I.C.6 of NUREG-0737.

9. Administrative controls governing crane operations are to include a requirement that the crane operators who operate cranes over fuel pools be qualified and conduct themselves in accordance with the guidelines of ANSI B30.2-1976 (Chapter 2-3) "Overhead and Gantry Cranes."

B. Administrative Procedures - Initial Test Program

1. Test Procedures

The applicant's administrative and organizational system that will be used to develop, review, and approve individual test procedures should provide for appropriate levels of review prior to final approval. The individuals performing these functions should meet the qualification requirements described in Section 4.4.6 of ANS 3.1 draft revision dated 12/6/79. The applicant should utilize system designers to provide the test objectives and acceptance criteria used in developing detailed test procedures. The participating system designers should include those of the nuclear steam supply system vendor, architect-engineer, and other major contractors, subcontractors, and vendors, as appropriate.

2. Conduct of Test Program

a. The test program should be conducted by appropriately qualified personnel using detailed procedures approved by designated management positions within the applicant's organization.

b. The controls used by the applicant to assure that test prerequisites are met should include requirements for inspections, checks, etc., require identification of test personnel completing data forms or checksheets and require identification of dates of completion.

c. The controls provided for plant modification and repairs, identified as a result of plant testing, are found to be acceptable if: (1) the controls are sufficient to assure the required repairs modifications will be made, (2) the controls will assure retesting is conducted following such modifications or repairs, and (3) the controls will assure a review of any proposed facility modifications by the original design organization or other designated design organizations. The applicant's requirements for documentation associated with such controls should permit audits to be made to assure proper implementation of controls.

d. The controls pertaining to adherence to test procedures and to methods for changing test procedures are found to be acceptable based on the reviewer's judgment. Modifications to startup test procedures should be made in accordance with technical specifications for post-fuel loading tests.

3. Review, Evaluation, and Approval of Test Results

   a. The controls that will govern the review, evaluation, and approval of test results should provide for a technical evaluation of test results by qualified personnel and approval of test results by personnel in designated management positions in the applicant's organization.

   b. Design organizations should be notified and should participate in the resolution of problems involving design that result in or contribute to a failure to meet test acceptance criteria.

   c. The applicant should establish the requirement that test data for each major test phase will be reviewed and approved prior to beginning the next phase of testing.

   d. The applicant should establish the requirement that test data at each major power test plateau or power/flow test condition will be reviewed and approved before proceeding to the next test level during the power ascension test phase.

III. REVIEW PROCEDURES

The review under this SRP section consists of a detailed comparison of the information submitted with the acceptance criteria of subsection II above, as applicable to the FSAR. When the reviewer has determined that each of these criteria has been satisfied, based upon the statements made by the applicant in the SAR, the review under this SRP section is complete.

This detailed comparison form of review is applicable to those items for which acceptance criteria are defined in subsection II. For those remaining items (primarily those providing operational controls) the reviewer must use his judgment in determining that adequate controls have been provided by the applicant.

IV. EVALUATION FINDINGS

The reviewer verifies that the information presented and his review, support the following type of conclusion to be used in the staff's safety evaluation report.

> The staff concludes that the Administrative Procedures are acceptable and contribute to meeting the requirements of 10 CFR Part 50, §50.40(b) and §50.54(1). This conclusion is based on the following:
>
> The applicant has described the program and procedures that provide administrative controls over activities important to safety. These include the activities of the preparation, review and approval of plant operating and maintenance procedures, the responsibility and duties of shift personnel, shift relief and turnover procedures, access to the control room, limitations on working hours, the feedback of operating information to plant personnel, the procedure for verifying the correct performance of operating activities, and the

administrative provisions for the control of the initial plant test program. We have reviewed these provisions and find they meet the staff guidance described in Section 5.2 of ANSI/ANS 3.2 and in Regulatory Guide 1.33 and the applicable parts of the Task Action Plan Item I.A.1.2, I.A.1.3, I.C.2, I.C.3, I.C.4, I.C.5, and I.C.6. The applicant has also met the guidelines of ANSI B30.2 and Section 4.4.6 of ANS 3.1.

In addition, the implementation of an administrative procedures program contributes to the finding required by 10 CFR Part 50, §50.40(b); i.e., that the applicant is technically qualified (to operate a nuclear power plant).

V. IMPLEMENTATION

The following is intended to provide guidance to applicants and licensees regarding the NRC staff's plans for using this SRP section.

Except in those cases in which the applicant proposes an acceptable alternative method for complying with specified portions of the Commission's regulations, the method described herein will be used by the staff in its evaluation of conformance with Commission regulations.

Implementation schedules for conformance to parts of the method discussed herein are contained in the referenced regulatory guide and NUREGs.

VI. REFERENCES

1. 10 CFR Part 50, §50.40, "Common Standard."
2. 10 CFR Part 50, §50.54, "Conditions of Licenses."
3. Regulatory Guide 1.33, "Quality Assurance Program Requirements (Operation)."
4. NUREG-0578, "TMI-2 Lessons Learned Task Force Status Report and Short-Term Recommendations."
5. NUREG-0694, "TMI-Related Requirements for New Operating Licenses."
6. NUREG-0737, "Clarification of TMI Action Plan Requirements."

7590-01

U.S. NUCLEAR REGULATORY COMMISSION

NUREG-0800

"STANDARD REVIEW PLAN FOR THE REVIEW OF SAFETY ANALYSIS REPORTS FOR NUCLEAR POWER PLANTS"

NOTICE OF ISSUANCE AND AVAILABILITY
REVISED SRP SECTION 13.5.2
AND APPENDIX A TO SRP SECTION 13.5.2

The U.S. Nuclear Regulatory Commission (NRC) has published a revision to Section 13.5.2, "Operating and Maintenance Procedures," and Appendix A to SRP Section 13.5.2, "Review Procedures for the Evaluation of Procedures Generation Packages" of NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," LWR Edition (SRP).

The revision consists of SRP Section 13.5.2, Rev. 1,and an appendix to Section 13.5.2, Appendix A, Rev. 0. The revised SRP Section incorporates the resolution of TMI Action Plan item I.C.1, "Short-Term Accident Analysis and Procedure Revision" and the partial resolution of item I.C.9, "Long-Term Program Plan for Upgrading Procedures" of Supplement 1 to NUREG-0737 - "Requirements for Emergency Response Capability" (Generic Letter 82-33). The acceptance criteria and guidelines incorporated into SRP Section 13.5.2 and Appendix A to this Section are a formalization of criteria that were previously approved and issued in Supplement 1 of NUREG-0737 as Generic Letter 82-33 dated December 17, 1982. Appendix A to

Section 13.5.2 was formerly Draft NUREG-0799, "Draft Criteria for Preparation of Emergency Operating Procedures, Draft Report for Comment," and NUREG-0899, "Guidelines for the Preparation of Emergency Operating Procedures, Final Report." A notice of availability and request for public and industry comments on NUREG-0799 was published in the Federal Register on July 2, 1981 (46 FR 34735). The notice of availability for NUREG-0899 was published in the Federal Register on September 16, 1982 (47 FR 40958).

The revised SRP section is effective immediately. A copy is expected to be available in the NRC Public Document Room within two weeks. Copies of the revised SRP Section or the complete Standard Review Plan, NUREG-0800, Accession No. PD-81-920199, is available for purchase from the National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22161; telephone (703) 487-4650.

Dated at Bethesda, Maryland, this 17th day of July 1985.

FOR THE NUCLEAR REGULATORY COMMISSION

Harold R. Denton, Director
Office of Nuclear Reactor Regulation

NUREG-0800
(Formerly NUREG-75/087)

U.S. NUCLEAR REGULATORY COMMISSION

STANDARD REVIEW PLAN

OFFICE OF NUCLEAR REACTOR REGULATION

Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants

Section No. 13.5.2
Revision No. 1

Appendix No. A to 13.5.2
Revision No. 0

Branch Tech. Position N/A
Revision No. N/A

Date Issued July 1985

FILING INSTRUCTIONS

PAGES TO BE REMOVED			NEW PAGES TO BE INSERTED		
PAGE NUMBER		DATE	PAGE NUMBER		DATE
13.5.2-1 thru 13.5.2-5	Rev. 0	July 1981	13.5.2-1 thru 13.5.2-8	Rev. 1	July 1985
Appendix A to 13.5.2	None	None	Appendix A to 13.5.2 13.5.2-A1 thru 13.5.2-A16	Rev. 0	July 1985

The U.S. Nuclear Regulatory Commission's Standard Review Plan, NUREG-0800, prepared by the Office of Nuclear Reactor Regulation, is available for sale by the National Technical Information Service, Springfield, VA 22161.

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13.5.2 OPERATING AND MAINTENANCE PROCEDURES

REVIEW RESPONSIBILITIES

Primary - Procedures and Systems Review Branch (PSRB)

Secondary - None

I. AREAS OF REVIEW

PSRB reviews the applicant's plan for development and implementation of operating and maintenance procedures as described in the applicant's Safety Analysis Report (SAR). This section of the SAR should describe the operating procedures that will be used by the operating organization (plant staff) to assure that routine operating, off-normal, and emergency activities are conducted in a safe manner. It is not expected that detailed written procedures will be included in the SAR. The Preliminary Safety Analysis Report (PSAR) should describe preliminary schedules for the preparation of procedures and the Final Safety Analysis Report (FSAR) should provide descriptions of the content and development process for procedures as detailed below.

A. The FSAR or other submitted section should describe the different classifications of procedures the operators will use in the control room for plant operations. The group within the operating organization having the responsibility for maintaining the procedure should be identified and the general format and content of the different classifications should be described. It is not necessary that each applicant's procedures conform precisely to the same classification since the objective is to assure that procedures will be available to the plant staff to accomplish the functions contained in the listing of Regulatory Guide 1.33. For example, some licensees prefer a classification of abnormal operating procedures whereas others may use off-normal condition procedures. Examples of classifications follow:

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Published standard review plans will be revised periodically, as appropriate, to accommodate comments and to reflect new information and experience.

Comments and suggestions for improvement will be considered and should be sent to the U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, Washington, D.C. 20555.

1. System Procedures. Procedures that provide instructions for energizing, filling, venting, draining, starting up, shutting down, changing modes of operation, returning to service following testing (if not contained in the applicable testing procedure), and other instructions appropriate for operation of system important to safety.

2. General Plant Procedures. Procedures that provide instructions for the integrated operations of the plant, e.g., startup, shutting down, shutdown, power operation and load changing, process monitoring, and fuel handling.

3. Off-normal Condition Procedures. Procedures that specify operator actions for restoring an operating variable to its normal controlled value when it departs from its normal range or to restore normal operating conditions following a transient. Such actions are invoked following an operator observation or an annunciator alarm indicating a condition which, if not corrected, could degenerate into a condition requiring action under an emergency operating procedure (EOP).

4. Emergency Operating Procedures. Procedures that direct actions necessary for the operators to mitigate the consequences of transients and accidents that cause plant parameters to exceed reactor protection system or engineered safety features actuation setpoints.

5. Alarm Procedures. Procedures that guide operator actions for responding to plant alarms.

B. The FSAR should describe how maintenance and other operating procedures are classified, what group or groups within the operating organization have the responsibility for maintaining and performing the duties prescribed in each class of procedures, and the general objectives and characteristics of each class. If their general objectives and characteristics are described elsewhere in the FSAR or application, these may be approximately referenced.

An acceptable procedures classification system for IB is contained in Regulatory Guide 1.33.

C. The FSAR or other submittal should describe the applicant's program for emergency operating procedures (A.4 above) and provides a description of the required content of the applicant's submittal. PSRB will review the applicant's program for development and implementation of the EOPs.

A Procedures Generation Package (PGP) for EOPs should be submitted to NRC at least three months prior to the date the applicant plans to begin formal operator training on the EOPs. The PGP should include:

1. Plant-Specific Technical Guidelines (P-STGs). Guidelines based on analysis of transients and accidents that are specific to the applicant's plant design and operating philosophy. The submitted documentation of the P-STGs will provide the basis for and include a reference to generic guidelines if used.

For plants not referencing generic guidelines, this section should contain the action steps necessary to mitigate transients and accidents in a format that allows mitigation without first having diagnosed the specific event, along with all supporting analyses, to meet the requirements of TMI Action Plan Item I.C.1. (NUREG-0737 and Supplement 1 to NUREG-0737).

For plants referencing generic guidelines, the submitted documentation should include: 1) a description of the process used to develop plant-specific guidelines from the generic guidelines, 2) identification of significant deviations from the generic guidelines including identification of additional equipment beyond that identified in the generic guidelines, along with all necessary engineering evaluation or analyses to support the adequacy of each deviation, and 3) a description of the process used for identifying operator information and control requirements. Examples of significant safety deviations are provided in Appendix A to this SRP section, Subsection 3.3.2.

2. A plant-specific writers guide (P-SWG) that details the specific methods to be used by the applicant in preparing EOPs based on P-STGs.

3. A description of the program for verification/validation (V/V) of EOPs.

4. A description of the program for training operators on EOPs.

PSRB coordinates evaluations by other branches that involve the review of operating and maintenance procedures. If an applicant references or provides unreviewed technical guidelines as the basis for the plant-specific EOPs, PSRB will conduct an initial review of the guidelines. If the unapproved guidelines incorporate significant technical changes from approved guidelines, then the PSRB may request technical review by RSB. RSB will provide requests for additional information, if necessary, and will provide SER input to PSRB.

II. ACCEPTANCE CRITERIA

Section 13.5.2 of the SAR constitutes additional evidence of the applicant's technical qualifications, and forms a basis for a key part of the regulatory inspection program. Acceptance is based on meeting the relevant requirements of 10 CFR Part 50.34 as indicated below. Additional guidelines listed in this subsection provide guidance to applicants for meeting basic requirements.

A. Completion of operating and maintenance procedures. A generally acceptable target date for completion of operating and maintenance procedures is about six months before fuel loading to allow adequate time for plant staff familiarization and to allow NRC staff adequate time to develop operator license examinations. The PGP for EOPs must be submitted not later than three months prior to the date formal operator training on EOPs is to begin.

B. Operating Procedures to be used by licensed operators in the control room. The regulations and staff guidelines applicable to this subsection are as follows:

1. 10 CFR Part 50, §50.34(a)(6) and (10) and §50.34(b)(6)(iv) and (v).
2. NUREG-0737, Clarification of TMI Action Plan, Item I.C.1, Guidance for the Evaluation and Development of Procedures for Transients and Accidents. (Emergency Operating Procedures Only)
3. Supplement 1 to NUREG-0737, TMI Action Plan Items I.C.1 and I.C.9 Requirements for Emergency Response Capability, Item 7, Subsection 7.1 and 7.2, Upgrade of Emergency Operating Procedures. (Emergency Operating Procedures Only)
4. The guidelines in the Regulatory Position Section of Regulatory Guide 1.33.
5. The guidelines of ANSI/ANS 3.2 - 1982, Section 5.3.
6. Appendix A to Standard Review Plan, Section 13.5.2, Guidelines for the Evaluation of Procedures Generation Packages. (Emergency Operating Procedures Only)

C. Other Operating and Maintenance Procedures. The regulations and staff guidelines applicable to this section are as follows:

1. 10 CFR Part 50, §50.34(a)(6) and §50.34(b)(6)(iv).
2. The guidelines in the Regulatory Position Section of Regulatory Guide 1.33.
3. The guidelines of ANSI/ANS 3.2 - 1982, Section 5.3.

III. REVIEW PROCEDURES

Review of the FSAR in accordance with this section consists of a detailed comparison of the information submitted with the acceptance criteria of subsection II above. The PSAR review should encompass only the schedules for procedures development and determination that the applicant commits to follow the applicable Regulatory Guides and Standards.

To supplement the expertise of the reviewer especially in the human factors area and to promote consistency among the PGP reviews, Appendix A identifies the subjects which should be considered by the reviewer in the evaluation. However, Appendix A is not a "checklist" and each item of Appendix A need not be addressed in the PGP to be acceptable.

Normally the PGP review should be conducted prior to the date the applicant plans to begin formal operator training on the EOPs. If this is not possible because of a delayed submittal, perform an acceptance review of the PGP. Specifically, audit the four parts of the PGP to determine if there are any major deficiencies in the EOP program that warrant postponing operator training. If major deficiencies are found, identify the additional information necessary to conduct the complete PGP review to the Licensing Project Manager so that the applicant can be notified prior to the initiation of training on the EOPs.

Review the PGPs for operating license applicants to determine if the applicant's program meets the requirements of Generic Letter 82-33. The review consists of the evaluation of the four parts of the PGP: The P-STGs, the P-SWG, the description of the program for V&V of the EOPs, and the description of the training program for EOPs necessary to support the conclusions described in Section IV below. To support this review, Appendix A provides additional review guidance.

Review the P-STGs to determine if acceptable analyses of accidents and transients and development of technical guidelines for operator actions applicable to the plant have been completed, and to determine if an acceptable process for identifying operator information and control needs has been described. Instead of being included in the PGP, this process may be described by the applicant in the documentation submitted for staff review in accordance with SRP 18.1, in support of the Detailed Control Room Design Review (DCRDR). The reviewer should coordinate review of this material with the Human Factors Engineering Branch (HFEB). It is expected that most applicants will reference generic technical guidelines.

For an applicant using approved generic technical guidelines as the basis for its P-STG, the major portion of the review of the technical guidelines has been accomplished generically. Staff SERs approving each of the four owners groups' generic technical guidelines for use have been published and may be supplemented as guidelines are revised. To review this type of P-STG, review the process described for converting generic technical guidelines into plant-specific procedures to ensure that the safety significant deviations from the generic guidelines are controlled. Evaluate the technical adquacy of the identified plant-specific deviations. Finally, evaluate the process for development of the plant-specific information and control requirements necessary to use the EOPs.

The review of identified safety-significant deviations from generic technical guidelines will be conducted to the same level of detail as the generic technical guidelines. Examples of safety-significant deviations are given in Appendix A, Subsection 3.3.2. Assistance from other technical review branches will be obtained as necessary to perform a thorough review of the safety-significant deviations. Only safety-significant deviations need to be reviewed. However, the reviewer will determine that the applicant's program will control this process so that the work is auditable. It is expected that most applicants will control the rocess by documenting all deviations.

Since B&W plant owners elected to use a lead plant concept rather than generic technical guidelines, each B&W applicant's identified deviations from the lead plant's (Oconee) guidelines will be reviewed.

For applicants not referencing generic technical guidelines, ensure that the submittal includes analysis of accidents and transients in accordance with the guidance of NUREG-0660 and NUREG-0737 Items I.C.1 and I.C.9. To do this, (1) become familiar with the integrated performance of the NSSS and balance of plant systems, (2) evaluate the completeness of the accidents and transients analyzed, (3) evaluate the use of appropriate models, calculational methods, and plant data, (4) consider audit calculations of selected accidents and transients, (assistance from other technical review branches required), (5) evaluate the adequacy of the applicant's program to develop guidelines from the analysis of accidents and transients, (6) test the guidelines against scenarios including multiple failures, and (7) evaluate the information and control needs of the operators to execute the instructions of the guidelines.

The P-SWG review will consider the adequacy of the methods of presentation of the technical information as EOPs for the intended users of the EOPs (e.g., control room operators, shift supervisors, and auxiliary operators). Review the P-SWG by evaluating the applicant's methods for meeting the overall writer's guide objectives stated in NUREG-0899. Appendix A provides guidance to assist the reviewer in making this evaluation. This guidance is not to be used as strict criteria, but is to be use as an aid in the overall evaluation of the P-SWG. Because strict criteria do not exist for the human factors evaluation, the reviewer must make a professional judgment regarding the adequacy of the applicant's methods as described in the P-SWG.

Review the V/V and training programs by comparing the program descriptions with the objectives of NUREG-0899.

The level of effort for these reviews will vary significantly. For example, the effort necessary to review the P-STG will vary depending on the number, complexity and significance of the plant-specific deviations from the approved generic technical guidelines.

If the review of the PGP does not provide sufficient information to support the conclusions of the Evaluation Findings section, the reviewer should obtain at least one EOP for review. As aproduct of the EOP program, the EOP(s) would then be additional information for judging the program's acceptability and will provide additional information as to how the applicant's program for development and implementation of EOPs should be modified to ensure that it contains sufficient information to assure acceptability of the resulting EOPs.

When the reviewer has determined that each of the criteria of Section II have been satisfied based upon the statements made by the applicant in the SAR, the review of Section 13.5.2 is complete.

When the review has determined that each of these criteria has been satisfied based upon the statements made by the applicant in the SAR, the review of this SRP section is complete.

IV. EVALUATION FINDINGS

The reviewer verifies that the information presented and his review support the following type of conclusion, to be used in the staff's safety evaluation report:

> The applicant's program for operating and maintenance procedures as described in the SAR is in accordance with 10 CFR 50.34, Regulatory Guide 1.33, and ANSI/ANS 3.2-1982 Section 5.3 and is acceptable. The applicant's program for development of EOPs has been reviewed and the staff concludes that:

1. In the area of the technical guidelines:

    (a) The EOPs will be based upon acceptable technical guidelines derived from approved analyses of transients and accidents.

    (b) Implementation of the applicant's described methods for conducting an anlysis of the operator's tasks should result in the identification of the instrumentation and controls necessary to perform the tasks specified in the P-STGs.

2. In the area of writer's guidance:

    (a) The writer's guide provides sufficient information to help ensure that EOPs developed using P-STGs will be useable, accurate, complete, readable, convenient to use, and acceptable to control room personnel.

    (b) The methods described by the writer's guide appear sufficient to support upgrading of the procedures and to ensure long-term consistency within and among procedures.

3. Implementation of the described V/V program provides adequate assurance that EOPs are technically current and useable, follow the writer's guide, correspond to the control room/plant hardware, and are compatible with the minimum number, qualifications, training, and experience of the operating staff.

4. Implementation of the described training program should result in the operator understanding the philosophy behind the approach to the EOPs, understanding the mitigative strategy and technical basis of the EOPs, having a working knowledge of the technical content of the EOPs, and having the capability to execute the EOPs under operational conditions.

The evaluation findings for this section should also include the following:

1. A statement that the applicant has committed to operate the plant in accordance with written and approved procedures.

2. A brief description of the categories of procedures to be included.

3. A description of the review conducted to ensure that Supplement 1 to NUREG-0737 Item 7, "Upgrade of Emergency Operating Procedures" has been implemented.

V. IMPLEMENTATION

The following is intended to provide guidance to applicants and licensees regarding the NRC staff's plans for using this SRP Section.

Except in those cases in which the applicant proposes an acceptable alternative method for complying with specified portions of the Commissions' regulations, the method described herein will be used by the staff in its evaluation of conformance with Commission regulations.

Implementation schedules for conformance to parts of the methods discussed herein are contained in the referenced regulatory guides, NUREGS and in accordance with the following:

a. This SRP revision is applicable to construction permit applicants. Only the guidance pertaining to PSAR contents, i.e., schedules and commitments to follow guidance in appropriate published documents, will be used as review guidance.

b. This SRP revision will be used by the staff for judging the acceptability of Operating Reactor licensees and operating license applicant emergency operating procedure program submittals made in accordance with Supplement 1 to NUREG-0737 - Requirements for Emergency Response Capability (Generic Letter 82-33). The review guidance in this SRP Section replaces the review guidance contained in Generic Letter 82-33.

VI. REFERENCES

1. ANSI/ANS 3.2 1982, "Standard for Administrative Controls for Nuclear Power Plants," American National Standards Institute.

2. Regulatory Guide 1.33, "Quality Assurance Program Requirements (Operation)."

3. 10 CFR Part 50, § 50.34, "Contents of Applications; Technical Information."

4. Regulatory Guide 1.70, "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants."

5. NUREG-0737, Clarification of TMI Action Plan Requirements.

6. Supplement 1 to NUREG-0737, Requirements for Emergency Response Capability (Generic Letter 82-33, December, 1982).

7. NUREG-0899, Guidelines for Preparation of Emergency Operating Procedures.

8. Generic Letters 83-05, 83-22, 83-23, and 83-31, Staff Safety Evaluation Reports for Generic Technical Guidelines for GE, CE, W, and B&W plants, respectively.

NUREG-0800
(Formerly NUREG-75/087)

U.S. NUCLEAR REGULATORY COMMISSION

STANDARD REVIEW PLAN

OFFICE OF NUCLEAR REACTOR REGULATION

Appendix A to SRP Section 13.5.2	REVIEW PROCEDURES FOR THE EVALUATION OF PROCEDURES GENERATION PACKAGES

Review Responsibilities

Primary - Procedures and Systems Review Branch (PSRB)

Secondary - None

1.0 Background

In August of 1982, NUREG-0899, "Guidelines for the Preparation of Emergency Operating Procedures" was published. This document is designed to "identify the elements necessary for licensees and applicants to prepare and implement Emergency Operating Procedures (EOPs) that will provide the operator with directions to mitigate the consequences of a broad range of accidents and multiple equipment failures." In addition to identifying these elements, the document also outlines the process by which licensees and applicants should develop, implement, and maintain EOPs. To ensure that the elements are addressed in the new or upgraded procedures and that acceptable processes of development, implementation and maintenance are used, the staff identified a method of review that is intended to provide confidence that EOPs written or upgraded according to a given plant's program would be acceptable. The NRC staff believes that it is more important that they ensure that the process used to generate procedures and their technical basis is sound and well documented, than to perform a one-time review of EOPs, with no assurance that future EOP revisions are technically adequate and consistent with existing EOPs. With this approach, responsibility for the generation and review of the EOPs, as well as future revisions to EOPs, is retained by the licensee.

In NUREG-0899, four aspects of EOP development and implementation are identified as providing an adequate basis for review. These are (1) plant-specific technical guidelines (P-STG); (2) a plant-specific writer's guide; (3) a descrition of the

USNRC STANDARD REVIEW PLAN

Standard review plans are prepared for the guidance of the Office of Nuclear Reactor Regulation staff responsible for the review of applications to construct and operate nuclear power plants. These documents are made available to the public as part of the Commission's policy to inform the nuclear industry and the general public of regulatory procedures and policies. Standard review plans are not substitutes for regulatory guides or the Commission's regulations and compliance with them is not required. The standard review plan sections are keyed to the Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants. Not all sections of the Standard Format have a corresponding review plan.

Published standard review plans will be revised periodically, as appropriate, to accommodate comments and to reflect new information and experience.

Comments and suggestions for improvement will be considered and should be sent to the U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, Washington, D.C. 20555.

program for verification/validation of the EOPs; and (4) a description of the program for training operators on the EOPs. Information on each of these items are to be provided as the "Procedures Generation Package" (PGP). The PGP for each plant will provide the licensee with a technical and human factors basis for developing its EOPs and for making future revisions to its EOPs.

The formal requirement for submitting this package is provided in Supplement 1 to NUREG-0737, "Requirements for Emergency Response Capability" (Generic Letter No. 82-33). EOPs at all plants will eventually be audited as a part of routine regional inspections to ensure consistency with the PGP.

The purpose of this document is to provide guidance for reviewers during their evaluation of PGPs. The PGP is expected to contain specific information in each of its four parts. The review guidance below is divided into general objectives and specific review guidelines. The listing of review guidelines represents what the staff believes should be considered by reviewers in determining if the general objectives are met. Because each of the objectives can be adequately addressed in many ways and may be satisfied without addressing each of the review guidelines, it will often be necessary for reviewers to use their expert judgment in determining the acceptability of a particular submittal. The general objectives and supporting documents such as NUREG-0899 and NUREG-0799 should be used as guidance in making these judgments. The methods provided in NUREG-0799 are an acceptable approach for preparing EOPs. It should be recognized, however, that approaches other than those found in these documents may be acceptable, and reviewers will need to use their judgment in determining the adequacy of the PGP.

As described in the SRP, all PGPs will be reviewed by the staff. The review guidelines presented in Subsections 3 through 6 of this appendix provide additional assistance to the reviewers. All applicants have the option of providing a justification for their approach where they disagree with a staff position. When all issues are resolved or when the schedule dictates, the reviewer will prepare a Safety Evaluation Report (SER).

2.0 General Guidance to Reviewers

The guidance that follows is provided to assist the reviewer in using the criteria presented in Subsections 3 through 6 of this appendix.

2.1 Reviewers should be aware that different degrees of objectivity (and thus, subjectivity) may be required in reviewing each of the four parts of the PGP since the parts may differ in detail and approach.

2.2 Reviewers should become very familiar with the General Objectives associated with each section of a PGP. The specific review guidelines can serve as the basis for making the subjective evaluations of the general objectives.

2.3 When an objective is not met or a specific response cannot be judged acceptable because of missing information, the reviewer should identify the information that is missing and what is needed in the PGP to make it acceptable.

2.4 Some items included in a PGP may not be addressed either within the general objectives or the specific review guidelines. These items must be evaluated carefully to ensure that unnecessary or possibly detrimental inclusions do not occur in the EOPs (e.g., an "EOP Deficiencies" section is not a desirable inclusion in an EOP).

2.5 As stated in the Background, most of the review guidelines are subjective in nature. The reviewer will have to jduge whether the discussion of an item is sufficiently clear, complete and technically acceptable to achieve the objectives.

2.6 In some instances the language (i.e., names, titles, etc.) used in the PGPs may be different from that used in this document, although the same subjects or items are being discussed. For example, format of "decision aids" may be covered under a PGP section entitled "job performance aids." Reviewers should be careful that identified PGP deficiencies are not based on semantics.

2.7 In some instances a particular subject may not appear to be addressed in the PGP, when in fact it is addressed in another part of the PGP. For example, the determination of the adequacy of control room instrumentation and controls may not be addressed in the P-STG, but included as a part of the validation/verification program. Reviewers msut therefore become familiar with the general objectives and specific review guidelines as a whole so that these situations can be readily identified.

3.0 Plant-Specific Technical Guidelines

3.1 General Discussion

All licensees and applicants are required to submit P-STGs. These guidelines may be based on (1) generic technical guidelines (prepared by the owner's group), or (2) a plant-specific reanalysis of transients and accidents as described in TMI Action Plan Item I.C.1. In either case, the P-STG should be based on the identification of plant systems and functions, and be supported by an analysis of operator tasks to identify operator information and control needs. Among the four approved generic technical guidelines, operator task information is provided using different levels of detail. If generic technical guidelines are referenced, the need for additional task specification will be different depending upon the level of task information provided by the generic technical guidelines, and the nature of deviations from the guidelines.

The information to be submitted in the PGP as P-STG is dependent on whether or not generic technical guidelines are used, as well as the degree to which plant specific characteristics (e.g., equipment) are consistent with the plant on which the generic technical guidance is based.

Some of the "deviations" that must be addressed as part of the P-STG submittal are differences between the generic technical guidelines and the P-STG. This includes differences due to plant initiatives and those identified in the generic guidelines as "plant-specific" items. Only differences that are safety significant, e.g., related to systems functions, or methods, should be reviewed. Subsection 3.3.2 provides examples of other deviations that must also be addressed. Where an applicant does reference NRC approved generic technical guidelines, they should not submit those guidelines. However, safety significant deviations from the mitigative strategy should be described. Furthermore, applicants using generic guidelines need not submit the detailed action steps. The process for developing the action steps from the generic guidelines should be described. Applicants not using generic guidelines should submit, as a part of the P-STG, the action steps necessary to mitigate transients and accidents, and supporting technical analysis and bases. The P-STG should have an orientation that allows mitigation without event diagnosis. In either case, the applicant should submit a description of how operator information and control needs were derived and used to specify instrumentation and control requirements. This description may be in the PGP or in the Section of the FSAR addressed by SRP Section 18.1, Control Room.

The guidance presented below identifies elements reviewers should consider in determining acceptability of P-STG.

3.2 General Technical Objectives

The purpose of the review of the technical guidelines submittal is to determine that the following general objectives are adequately addressed. A listing of specific evaluation elements are identified in Subsections 3.3 and 3.4.

3.2.1 The EOPs will be based on acceptable technical guidelines derived from approved analyses of transients and accidents as described in NUREG-0660, Item I.C.1 and I.C.9, as clarified by NUREG-0737 and Supplement 1 to it, Item I.C.1. The P-STG along with the generic guidelines (if referenced) and supporting documentation provide EOP writers with all the technical information necessary for preparing EOPs which direct operators' actions to mitigate the consequences of transients and accidents without a need to first diagnose an event to maintain the plant in a safe condition (function orientation).

Part of the acceptability of the P-STG is that the P-STG are validated by the applicant using methods acceptable to the reviewer (see NUREG-0899, Sections 2.6 and 4.2).

3.2.2 The PGP describes an adequate method to identify information and control needs to be used as a basis for identifying control room instrumentation and controls necessary to perform the tasks specified in the technical guidelines.

3.3 Specific Review Guidelines - Plants Using NRC Approved Generic Technical Guidelines

To determine that the applicant's PGP adequately accomplishes the above objectives, the reviewer should consider the following:

3.3.1 P-STG Development

3.3.1.1 Approved version of generic technical guidelines indicated.

3.3.1.2 A description of the process used to translate the generic technical guidelines into the P-STG.

3.3.2 Deviations and Additions

3.3.2.1 Identification of safety significant deviations from the NRC approved generic technical guidelines. Examples of deviations that should be considered are as follows:

a. any modification to the mitigative strategy of the generic technical guidelines (e.g., for a Westinghouse plant, initial depressurizing the RCS following a steam generator tube rupture without first having conducted a limited cooldown in accordance with the guidelines to establish a margin to saturation).

b. differences in equipment operating criteria (e.g., RCP trip criteria, SI injection termination criteria).

c. differences in equipment operating characteristics (i.e., between the plant-specific equipment and that assumed in the generic analyses, such as SI that can be throttled vs. only on/off).

d. identification of methods and equipment used to address the technical areas of the generic guidelines that are specified as "plant-specific."

e. plant-specific setpoints or action levels that are calculated or determined in the manner other than specified in the generic technical guidelines.

NOTE: Plant-specific setpoints (e.g., setpoints associated with automatic initiation of ECCS) called for by the generic guidelines need not be included in the P-STG submittal.

f. actions that are taken in addition to those specified in the generic guidelines and that affect the mitigative strategy.

1. differences that affect the equipment's ability to adequately provide the necessary mitigative function.

2. use of different instruments or control parameters than those specified in the generic technical guidelines or determining instrumentation and control characteristics in a manner different than, or with a different basis than, that specified in the generic technical guidelines.

3.3.2.2 Identification of items not covered by the NRC approved generic technical guidelines (e.g., plant specific conditions, equipment, operations, or bracketed [ ] information from the generic technical guidelines that relate to systems, functions or methods).

3.3.2.3 Indication that the safety significant deviations and additions have been identified and technically justified.

NOTE: The reviewer has the option of either reviewing the complete P-STG with associated technical justification, or reviewing only the identified deviations from generic technical guidelines, including technical justification consistent with the Generic Letter 82-33 requirements.

3.3.3 Technical Adequacy of Operator Actions (not covered by, or deviations from, the generic technical guidelines)

NOTE: The evaluation of the technical adequacy of operator actions (i.e., that the procedures will work) may be addressed in the validation/verification sections of the PGP (i.e., at the completion of EOP development rather than during EOP development). The P-STG portion of the PGP should describe how the licensee will determine if the approach taken is effective in mitigating transients and accidents.

3.3.3.1 Description of the validation/verification of operator actions (to determine their technical adequacy)

3.3.4 Applicant's determination of the Need For and the Adequacy of Control Room Instrumentation and Controls for Emergency Operations

3.3.4.1 Description of the method used to determine information and control needs of the operators (function and task analysis)

NOTE: The determination of the adequacy of control instrumentation and controls may be addressed in the validation/verification sections of the PGP (i.e., at the conclusion of EOP development rather than during EOP development). For the P-STGs, adequacy of control room instrumentation and controls means that the available instrumentation and controls have been evaluated against the information and control needs of the operators and it has been determined that the parameters are correct and that the instrument and control characteristics (e.g., instrument range, units, precision, rate and setpoints; control type, function, rate, gain and response) meets the needs identified. This may be in the PGP or the section of the FSAR addressed by SRP Section 18.1.

3.3.4.2 Description of the method used to determine if the control room instrumentation and controls meet the information and control needs of the operators.

3.4 Specific Review Guidelines - Plants Not Using Generic Guidelines

The review of the P-STGs for plants not referencing generic guidelines will be performed using a methodology similar to that used to evaluate the acceptability of the owner's group guidelines. The reviewer should evaluate analyses submitted to support proposed accident recovery strategies. When necessary, the reviewer should request DSI (or other cognizant division) to evaluate analytical models. Improvements in accident recovery techniques should be encouraged; however, in the review of alternate strategies the reviewer should obtain from the applicant sufficient technical bases to demonstrate that the plant remains within its FSAR licensing basis envelope (for licensing basis events).

The reviewer evaluates the effects of and resulting recovery strategies for transients and accidents, using the guidance available in NUREG-0737. The P-STG reviewer should consider the following:

3.4.1 Analysis of transients and accidents (consistent with requirements of NUREG-0660 and NUREG-0737).

NOTE: The steps to be taken for this review are contained in the Review Procedures, SRP Section 13.5.2.

3.4.2 Validation of Technical Adequacy of Operator Actions

NOTE: The evaluation of the technical adequacy of operator actions (i.e., that the procedures will work) may be addressed in the validation/verification sections of the PGP (i.e., at the completion of EOP development rather than after P-STG development). The P-STG portion of the PCP should describe how the applicant will determine if the approach taken is effective in mitigating transient and accidents.

3.4.2.1 Description of the validation/verification of operator actions

3.4.3 Determination of the need for and the adequacy of Control Room Instrumentation and Controls for emergency operation

3.4.3.1 Description of the method used to determine information and control needs of the operators

NOTE: The determination of the adequacy of control room instrumentation and controls may be addressed in the validation/verification sections of the PGP (i.e., at the conclusion of EOP development rather than after P-STG development) or in the part of the FSAR addressed by SRP Section 18.1, Control Room. For the P-STGs, adquacy of control room instrumentation and controls means that the available instrumentation and controls have been evaluated against the information and control needs of the operators and it has been determined that the parameters are correct and that the instrument and control characteristics (e.g., instrument range, units, precision, rate and setpoints; control type, function, rate, gain and response) meet the needs identified.

3.4.3.2 Description of the method used to determine if the control room instrumentation and controls meet the information and control needs of the operators

4.0 Writer's Guide (Plant Specific) Review

4.1 General Discussion

Applicants are required to submit a writer's guide that details the specific methods to be used in preparing EOPs which are based on the P-STGs. NUREG-0899 provides objectives and intent for the writer's guide. Because of the variety of available technical writing style guides and other references pertaining to the presentation of information, the specific information found in the writer's guide is expected to vary considerably among plants. To supplement the human factors expertise of the reviewer, review guidelines are provided that address instructions and guidance expected to be found in writer's guides. In addition, the writer's guide should contain general, philosophical standards and information which would assist the writers in preparing the EOPs.

4.2 General Writer's Guide Objectives

The purpose of the evaluation is to determine if acceptable methods are described for accomplishing the following general objectives.

4.2.1 The writer's guide provides sufficient information for developing EOPs from the P-STG, which are useable, accurate, complete, readable, convenient to use, and acceptable to control room personnel.

4.2.2 The writer's guide supports upgrading of the procedures and long term consistency within and between procedures.

4.3 Specific Review Guidelines

NOTE: Following each element, the number in parentheses designates the specific section within NUREG-0899 where the element is addressed.

Asterisked items are those which may appear in a procedure at the discretion of the applicant. If they are used in the EOPs, they should be addressed in the writer's guide and considered in the review. Where a sample procedure is submitted as a part of the writer's guide, the reviewer should verify that any non-required element included in the procedure is addressed in the writer's guide.

To determine that the applicant's PGP includes methods which appear adequate to accomplish the above objectives, the reviewer should consider the following:

4.3.1 Organization, Content, and Format of Major Sections of the EOPs (5.5)

4.3.1.1 Cover page (5.4.1)

4.3.1.2 Table of contents* (5.4.2)

4.3.1.3 Scope statement (5.4.3)

4.3.1.4 Entry conditions (5.4.4)

4.3.1.5 Automatic actions* (5.4.5)

4.3.1.6 Content and Format of Operator Action Steps including (a) simple action steps, (b) steps which verify an action, (c) steps of continuous or periodic concern/applicability, (d) steps for which a number of alternative actions are equally acceptable, and (e) steps performed concurrently with other steps, and (f) steps which lead the operator to the appropriate subsection of the EOPs (5.4.6, 5.4.7, 5.7, 5.8).

4.3.1.7 Figures and tables* (5.4.8 and 5.5.8)

4.3.1.8 Flowcharts and decision aids* (5.4.8 and 5.5.9)

4.3.1.9 EOP page identifying information including title, procedure number, revision number and date, number of pages, unit designation (if applicable), facility designation, and location of identifying information in the EOP (5.5.1)

4.3.1.10 Page Layout including margins, line spacing, and steps complete on page (5.5.2)

4.3.1.11 Warnings (or Cautions) and Notes including placement, definitions, emphasis and format, and warnings (Cautions) and notes complete on one page (5.3, 5.7.9, 5.7.10)

4.3.1.12 Placekeeping aids (5.5.4)

4.3.1.13 Emphasis techniques (5.5.6)

4.3.1.14 Divisions, Headings and Numbering of Pages and Steps (5.5.5)

4.3.2 Writing Style (5.6)

4.3.2.1 A vocabulary list - words to use, their definition, and words to avoid (5.6.1)

4.3.2.2 A list of abbreviations, acronyms and symbols, and label consistency between procedures and control room (5.6.2)

4.3.2.3 Sentence structure and limit on actions per step (5.6.3)

4.3.2.4 Punctuation (5.6.4)

4.3.2.5 Capitalization (5.6.5)

4.3.2.6 Units of measure in the action steps and in the tables and figures should be consistent with presentation of information in the control room (5.6.6)

4.3.2.7 Numerals including type, use of decimals and significant digits (5.6.7)

4.3.2.8 Tolerances (5.6.8)

4.3.2.9 Formulas and calculations* (5.6.9)

4.3.2.10 Titles/nomenclature of instrumentation and controls (what information to provide in the procedure and in what format) (5.6.2)

4.3.3 Conditional and Logic Statements including format, style, emphasis; definition and use of logic terms; and logic terms and sequences to avoid (5.6.10 and Appendix B)

4.3.4 Referencing Other Procedures, Sections of Procedures or Subprocedures and Specific Steps Within a Procedure (5.2.2 and 5.5.7)

4.3.4.1 Content and format of reference (5.2.2)

4.3.4.2 The criteria used to determine when steps of a referenced procedure are to be included in an EOP (to minimize cross-referencing) (5.2.2)

4.3.4.3 Method for identifying sections or subsections (e.g., use of tabbing) (5.5.7 and 6.1.4)

4.3.5 When and how to present location Information (equipment, controls and displays) (5.7.11)

4.3.6 Control Room Staffing and Division of Responsibilities (5.8)

NOTE: This section addresses the need to consider operating crew staffing and responsibilities during the process of developing EOPs to help ensure efficient and effective implementation of EOPs during an emergency. Deficiencies in this regard may be identified by the applicant during validation/verification of the EOPs. Subsection items 4.3.6.1 through 4.3.6.4 may therefore be addressed under validation/verification.

4.3.6.1 Structuring of EOPs to ensure that minimum staffing can execute the EOPs

4.3.6.2 Designating the operators' responsibilities in implementing EOPs (i.e., each operator will know what they have to do during an emergency; it is not necessary to specify roles in PGP or EOPs)

4.3.6.3 Sequencing action steps to minimize physical interference between operators

4.3.6.4 Sequencing action steps to avoid their unintentional duplication by operators

4.3.7 Use and Maintenance of EOPs including accessibility and quality of copies (6.0)

4.3.8 Statement of commitment to use Writer's Guide in developing and revising the EOPs

5.0 Program for Validation/Verification

5.1 General Discussion

All applicants must submit a description of their programs for validating and verifying their EOPs. Because of the lack of a consistent and clearcut distinction between "validation" and "verification" within the nuclear industry, the staff has elected to bypass the semantic ambiguity by leaving their definition up to the individual applicants; only the desired outcomes are specified (independent of terminology). As a result, it is anticipated that there will be considerable variation in the nature of the submittals, particularly with regard to the guidelines addressed under each item below (if distinguished), and the amount of detail provided. Furthermore, both technical and human factors aspects of the EOPs are addressed by validation/verification activities, and submittals may integrate the two aspects under a given evaluation scheme. For these reasons reviewers will have to exercise considerable judgment in their review of the submittals. The evaluation elements for validation/verification were drawn from the six objectives identified in NUREG-0899 (subsection 3.3.5.1) which are repeated below. These objectives should serve as the general basis for determining the acceptability of the validation/verification programs reviewed.

5.2 General Objectives

The purpose of evaluating the validation/verification program is to ensure that the following general objectives are met. A listing of specific evluation elements is provided in Subsection 5.3.

5.2.1 EOPs are technically correct, i.e., they accurately reflect the technical guidelines

5.2.2 EOPs are written correctly, i.e., they accurately reflect the plant-specific writer's guide

5.2.3 EOPs are useable, i.e, they can be understood and followed without confusion, delays, errors, etc.

5.2.4 There is a correspondence between the procedures and the control room/plant hardware, i.e., controls, equipment, and indications that are referenced, are available (inside and outside of the control room), use the same designations, use the same units of measurement, and operate as specified in the procedures

5.2.5 The language and level of information presentation in the EOPs are compatible with the minimum number, qualifications, training and experience of the operating staff

5.2.6 There is a high level of assurance that the procedures will work, i.e., the procedures guide the operator in mitigating transients and accidents

5.3 Specific Validation/Verification Review Guidelines

To aid the reviewer in the evaluation of the validation/verification program, the reviewer should consider the following review guidelines:

5.3.1 Indication of the methods that will be used to meet each of the objectives (as specified in Subsection 5.2 above) of the validation/verification program; the specific combination of methods for meeting each objective should be identified by the applicant so that the reviewer has assurance that the objectives of the overall validation/verification program are met. In the staff's judgment, the following combination of methods should be used to meet each of the objectives:

5.3.1.1 Whether the EOPs are technically correct, (i.e., whether they accurately reflect the technical guidelines), is expected to be evaluated by a combination of the following methods: (a) desk-top review, (b) seminars, workshops, operating team review, and computer modeling/analysis.

5.3.1.2 Whether the EOPs are written correctly [i.e., whether they accurately reflect the (approved) plant-specific writer's guide], is expect to be evaluated by a combination of the following methods: (a) desk-top review, and (b) seminars, workshops, operating team review.

5.3.1.3 Whether there is a correspondence between the procedures and the control room/plant hardware, [i.e., controls, equipment, and indications that are referenced are available (inside and outside the control room), use the same designations, use the same units of measurement, and operate as specified in the procedures] is expected to be evaluated by a combination of the following methods: (a) seminars, workshops, operating team review, (b) control room walkthroughs (static), and (c) simulation (if plant-specific) (static).

5.3.1.4 Whether the EOPs are usable [i.e., they can be understood and followed without confusion, delays, errors, etc.] for the given level of qualifications, training, and experience of the control room staff, is expected to be evaluated by a combination of the following methods: (a) seminars, workshops, operating team review, (b) simulator exercises, and (c) control room walkthroughs (dynamic).

5.3.1.5 Whether the language and level of information presentation in the EOPs are compatible with the minimum control room staffing and the qualifications, training, and experience of the control room staff is expected to be evaluated by a combination of the following methods: (a) desk-top review,

(b) seminars, workshops, operating team review, (c) simulator exercises, and (d) control room walkthroughs (dynamic).

5.3.1.6 Whether there is a high level of assurance that the procedures will work [i.e., the procedures guide the operator in mitigating transients and accidents] is expected to be evaluated by a combination of the following methods: (a) desk-top review, (b) seminars, workshops, operating team review, (c) simulator exercises, and (d) control room walkthroughs (dynamic).

5.3.2 Indication that plant operators, subject matter experts, and procedures writers are involved

5.3.3 Identification of the roles played by the participants (i.e., how will operators, subject matter experts, etc., participate in the validation/verification process) (roles should be based on specific validation/verification objective being addressed)

5.3.4 Use of Scenarios

Indication that the full complement of EOPs are exercised, including multiple failures (simultaneous and sequential), and inclusion of criteria for selecting scenarios

NOTE: Where a generic simulator is used, and to some extent, where a plant reference simulator is used, it will not be possible to fully exercise all parts of the EOPs. In these instances, the PGP should describe the method that the licensee will use to ensure that the validation/verification program will cover areas missed in the simulator exercises. The following element is included to address this issue.

5.3.5 Indication that areas not covered by simulator exercises will undergo validation/verification

5.3.6 Description of the plan for correcting and revising EOPs as a result of the validation/verification and for feedback from simulator exercises, control room walkthrough, desk-top reviews, operating team reviews and operator training to address accuracy, readability, useability, and completeness of the EOPs

5.3.7 Statement of commitment to validate/verify revisions to EOPs, when appropriate, and the conditions under which revisions should be validated/verified

5.3.8 Description of the method by which multiple units will be handled in the validation/verification process to account for unit differences

NOTE: For multi-unit sites, the part of the validation/verification process involving control room walk-throughs and use of operators should be carried out for each unit of a multi-unit site to the extent that the units differ in terms of instrumentation, controls, equipment (including availability of, design of, labeling of, or location of) or any other aspect that may impact plant safety.

5.3.9 Indication that the EOPs will be compatible with minimum control room staffing

5.3.10 Description of the plan by which adequacy (in terms of availability, readability and usability) of control room instrumentation and controls will be determined

5.3.11 Description of the plan by which correspondence between EOPs and control room instrumentation and controls will be determined

5.3.12 Where available instrumentation and controls have not been evaluated against the information and control needs of the operators as a part of the P-STG (see Subsection 3.3.4.2 and 3.4.3.2), they should be evaluated as a part of the validation/verification program. The description of the validation/verification program should include the method that will be used to determine the adequacy of control room instrumentation and controls in meeting the information and control needs of the operators [i.e., it has been determined that the parameters are correct and that the instrument and control characteristics (e.g., accuracy, scaling, etc.) meet the needs identified].

NOTE: Since many aspects of validation/verification can be addressed during operator training, it is anticipated that applicants will combine these activities to make more efficient use of simulator time. Where validation/verification is tied to the EOP training program it is necessary for applicants to distinctly address validation/verification through a formal process which documents results and provides for feeding this information back into the EOP development process. The PGP should describe this process.

NOTE: Where EOPs are partially validated/verified on a generic simulator, licensees should commit to performing the dynamic portion of the validation/verification of the EOPs if a plant reference simulator becomes available.

6.0 Program for Operator Training on EOPs

6.1 General Discussion

Applicants are to submit descriptions of their planned programs for training operators on EOPs. The intent of reviewing the EOP training program is to ensure that operators will be trained prior to implementation of the EOPs, and that there is a reasonable assurance that the methods to be used in training are adequate. This determination can be made by verifying that the training program meets the general training objectives identified in Subsection 6.2. To determine that these general objectives are met, the reviewer should consider the specific review guidelines of Subsection 6.3.

6.2 General EOP Training Program Objectives

The purpose of the evaluation is to determine that the following general objectives are adequately addressed in the training program described by considering the specific review guidelines provided.. These guidelines are not intended to represent all the necessary components of an adequate training program, but rather to serve as a basis for assuring the staff that the operators have been trained prior to EOP implementation and that they will be capable of using the EOPs.

6.2.1 Trainees should understand the philosophy behind the approach to the EOPs, i.e., their structure and approach to transient and accident mitigation, including control of safety functions, accident evaluation and diagnosis and the achievement of safe, stable or shutdown conditions.

6.2.2 Trainees should understand the mitigation strategy and technical bases of the EOPs, i.e., the function and use of plant systems, subsystems, components, in mitigating transients and accidents.

6.2.3 Trainees should have a working knowledge of the technical content of the EOPs, i.e., they must understand and know how to perform each step in all EOPs to achieve EOP objectives.

6.2.4 Trainees should be capable of executing the EOPs)as indivduals and teams) under operational conditions, i.e., they must be able to carry out an EOP successfully during transients and accidents.

6.3 Specific EOP Training Review Guidelines

The reviewer should consider the following specific review guidelines in evaluating the description of the EOP training program:

6.3.1 Inclusion of training objectives consistent with Subsection 6.2 above

6.3.2 Use of Simulator Exercises

6.3.2.1 Specification of plant-specific or generic simulation

6.3.2.2 Indication that all EOPs will be exercised by all operators

NOTE: Where a generic simulator is used, and to some extent, where a plant reference simulator is used, it will not be possible to fully exercise all parts of the EOPs. In these instances, the PGP should describe the method that the applicant will use to ensure that the validation/verification program will cover areas missed in the simulator exercises. The following element is included to address this issue.

6.3.2.3 A description of the method for training in areas not covered by simulator exercises

6.3.2.4 Indication of planned operator roles and team work

6.3.2.5 Indication of the use of a wide variety of scenarios (i.e., incorporating multiple, simultaneous and sequential, failures)

6.3.3 Use of Control Room Walk-through

6.3.3.1 Indication of walk-through of all EOPs by all operators

6.3.3.2 Indication of planned operator roles and team work

6.3.3.3 Indication of use of a wide variety of scenarios (i.e., incorporating multiple failures, simultaneous and sequential)

6.3.4 Use of lectures, discussion sessions, and seminars

6.4 Indication that operators will be trained prior to implementation of EOPs

6.5 Indication that operators will be evaluated as part of the training program

ENCLOSURE 2

(See Question 10)

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

March 21, 1989

James T. McFarland, Commissioner
State of New York Public Service Commission
Ellicott Square Building
295 Main Street
Room 814
Buffalo, N.Y. 14203

Dear Commissioner McFarland:

Your letters of March 7 and March 9, 1989, to Chairman Zech informed the Nuclear Regulatory Commission that a hearing will be held by the New York State Public Service Commission to consider approval of the agreement between the Long Island Lighting Company (LILCO) and the Long Island Power Authority (LIPA) to transfer the Shoreham nuclear plant to LIPA. Your letter of March 9, 1989 requested that the NRC provide a staff member to testify at the PSC hearing concerning the safety of the Shoreham facility.

As you may know the NRC is presently in the process of finalizing its licensing determination concerning authorizing the Shoreham facility to operate at power levels higher than the presently authorized 5% of full power. The timing of the PSC hearing is such that we are not able to respond to your request for an NRC Staff witness. However, we are enclosing, under separate cover, copies of the NRC Staff Safety Evaluation Report, NUREG 0420 and its nine Supplements which address all safety issues associated with operation of the Shoreham facility. The NRC has held extensive adjudicatory hearings on issues placed in contention by the parties to the licensing proceeding. The NRC Atomic Safety and Licensing Boards and the Atomic Safety and Licensing Appeal Boards have determined that the facility can be operated without endangering public health and safety with respect to the safety issues raised in these proceedings.

The Nuclear Regulatory Commission has not yet completed its review of the issues not decided in the formal adjudication. The NRC staff's determination and recommendations will be presented to the Commission in a public meeting. The State of New York will be informed of the time and place of such public meeting.

Although the NRC staff has not yet completed review of certain remaining emergency planning matters, the Federal Emergency Management Agency has completed its review of emergency planning and the 1988 emergency planning exercise for the Shoreham facility and has reached a finding of reasonable assurance (that emergency plans are adequate and that there is reasonable assurance that they can be implemented). Enclosed are a copy of the FEMA report dated September 9, 1988 and a copy of FEMA's March 17, 1989 report on certain LILCO responses to prior FEMA comments.

While we are not able to provide the witness you requested, I hope that the enclosed information will be sufficient to make clear to the PSC the thorough evaluation of the safety of the Shoreham nuclear power facility carried out by the NRC.

Your letter of March 7, 1989 also raised a number of questions concerning the NRC licensing process and the potential effects of the proposed agreement between New York State and Long Island Lighting Company concerning the Shoreham facility.

1. "Does the NRC have to approve any transfer of ownership? Assuming Shoreham is licensed?"

   Sec. 101 of the Atomic Energy Act of 1954, as amended, requires a license from NRC in order for any person to "...transfer, acquire, possess, use..." a nuclear facility. Accordingly, any transfer of the Shoreham facility from the Long Island Lighting Company to any other person (legal entity) requires license approval from the NRC both for LILCO to transfer and for the transferee to acquire, possess, or use the facility. Ordinarily such approval would be reflected in a single amendment to the outstanding license. The obligation for NRC licensing approval is true under the present licensing status (authorized to operate not in excess of 5% of full power) and would not be changed by the issuance by NRC of a license authorizing higher power operation.

2. "On the basis of the foregoing [description of LIPA in your letter], could you tell whether there is any likelihood LIPA could be granted a license to decommission the Shoreham nuclear plant?"

   Activities involved in operating or decommissioning the plant would require technical expertise in safe operation of nuclear facilities and in the safe handling of radioactive materials. If an organization without prior nuclear experience were to request a license to operate or to undertake decommissioning of Shoreham, the NRC would have to be satisfied that the organization has obtained sufficient technical expertise to safely carry out the licensed activities, is properly organized to safely control such operation, and has provided a quality assurance program which satisfies the NRC's strict standards.

   At this stage we can make no judgement about what qualifications and technical resources LIPA might be able to marshal in connection with any application it may file for an NRC license.

3. Your letter noted that the New York Power Authority already holds a license to operate the Fitzpatrick plant and Indian Point Unit 3. You asked whether if "LIPA would not be eligible to own the Shoreham plant for decommissioning purposes, would NYPA be so eligible?"

The same basic standards discussed above under items 1 and 2 would apply to a transfer of Shoreham to NYPA. The NRC would have to determine that the proposed activities would be carried out safely in compliance with Commission regulations. However, since the NRC is already familiar with the technical and managerial competence of NYPA, the NRC staff may be able to complete its review of these matters more expeditiously than in the case of an organization with no prior nuclear experience.

4. "Is it possible for LILCO, if it gets an operating license to move to change the license from an operating license to a permit to decommission the plant and/or store nuclear fuel?"

It is possible for LILCO to request that its operating license be modified to start decommissioning activities at any time that LILCO determines that it intends to permanently cease operation. That would not be changed by the issuance by the NRC of a license authorizing operation at a higher power level.

5. You also asked whether "this chain of events" will prevent the NRC from granting LILCO a license?

It is not clear from your letter, which of the "events" postulated in your letter you mean. Nonetheless, LILCO may obtain an NRC license authorizing operation at a higher power level, up to full power, upon a determination by the NRC that LILCO has satisfied the NRC's licensing requirements. If LILCO no longer qualifies for a license to operate the plant because it has transferred the plant to another person, that could affect NRC licensing. However, if LILCO continues to possess (and own) the facility, as presently reflected in the current operating license and the license application (for a full power license), and satisfies applicable Commission regulations, LILCO would continue to qualify for a Commission operating license, including a license authorizing operation at a higher power level, up to full power.

Sincerely,

Victor Stello

Victor Stello, Jr.
Executive Director for Operations